Application for Authority to Construct/Permit to Operate Cooling Tower Modifications to Potrero Power Plant Unit 7 Project

COOLING TOWER SYSTEM AMENDMENT

Potrero Power Plant Unit 7 Project

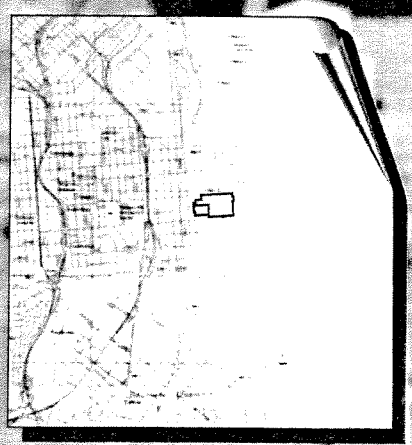
July 2003

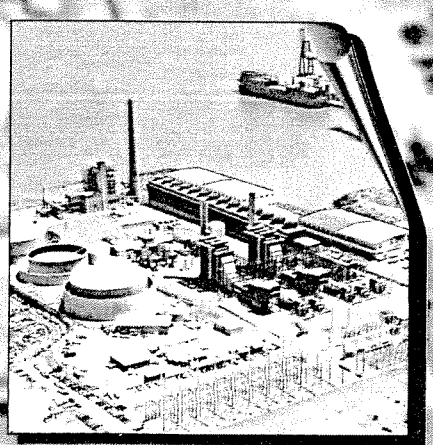
Prepared for:

MIRANT™
CALIFORNIA, LLC

Prepared by:

URS





Mirant Americas, Inc.
1350 Treat Boulevard, Suite 500, Walnut Creek, CA 94596
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July 22, 2003

Steve Hill
Manager Permit Services
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

MIRANT

Subject: **Submittal of Application for Authority to Construct Modifications – Potrero Unit 7 Project**

Dear Mr. Hill:

On December 4, 2001, the Bay Area Air Quality Management District (BAAQMD) issued a Final Determination of Compliance (FDOC) for the Potrero Unit 7 Project (Potrero Unit 7). The FDOC concluded that Potrero Unit 7 as proposed would comply with all applicable federal, state and BAAQMD regulations, including best available control technology and emission offset requirements.

The Potero Unit 7 Project is a 540 megawatt (MW) net combined cycle power generation project to be built at the Potrero Power Plant in San Francisco, California. BAAQMD has assigned this project application number 1355. The project is under concurrent review with the California Energy Commission (CEC).

Mirant was requested by the CEC to consider an upland cooling system for the Unit 7 project. The attached application presents modifications necessary to the FDOC for an upland cooling tower system. The upland cooling system would use recycled water, and is an alternative to the once-through cooling system using Bay water approved in the FDOC. It would consist of a wet/dry plume-abated cooling tower on the south side of the Potrero PP site and on- and off-site facilities necessary for supplying and treating secondary effluent from San Francisco's SEWPCP to use as cooling water

The attached application includes completed BAAQMD forms and supporting information. Please contact me at (925) 287-3121 if you have any questions or require additional information.

Sincerely,

Mark Harrer

Mark Harrer
Project Director
Mirant Americas Development, Inc.

Attachment: Application
CC. Bob Nishimura, BAAQMD, with attachment.

ATC/PTO APPLICATION
COOLING TOWER MODIFICATIONS TO
POTRERO POWER PLANT UNIT 7 PROJECT
BAAQMD APPLICATION NUMBER 1355

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ACRONYMS

AAQS	Ambient Air Quality Standards
AB	Assembly Bill
APCO	Air Pollution Control Officer
AQRV	Air Quality Related Values
ARB	Air Resources Board
ATC	Authority to Construct
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology
BPIP	Building Profile Input Program
BTU	British thermal unit
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	California Ambient Air Quality Standards
Cal-EPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CATEF	California Air Toxic Emission Factor
CEC	California Energy Commission
CEMS	Continuous emission monitoring system
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO_2	Carbon dioxide
CT	Combustion turbine
CTG	Combustion turbine generator
EPA	U.S. Environmental Protection Agency
ERC	Emission Reduction Credit
FDOC	Final Determination of Compliance
g/s	grams per second
HAP	hazardous air pollutant
HHV	higher heating value
HRA	Health Risk Assessment
HRSG	heat recovery steam generator
ISC	Industrial Source Complex
ISO	Independent System Operator
km	kilometer
kWh	kilowatt-hour
LAER	lowest achievable emission rate
lb/hr	pounds per hour
LORS	laws, ordinances, regulations, and standards
mg/m^3	milligrams per cubic meter
MM	million
mmBtu/hr	million Btu per hour

MW	megawatt
mwh	megawatt-hour
N_2	elemental nitrogen
NAAQS	National Ambient Air Quality Standards
NH_3	ammonia
NMHC	non-methane hydrocarbons
NO	nitrous oxide
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
NSR	New Source Review
O_2	oxygen
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
Pb	lead
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM_{10}	fine particulate matter less than 10 microns in diameter
$PM_{2.5}$	fine particulate matter less than 2.5 microns in diameter
POC	precursor organic compounds
Potrero PP	Potrero Power Plant
ppm	parts per million
ppmvd	parts per million by dry volume
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTO	Permit to Operate
RELs	Reference exposure levels
scf	standard cubic foot
SCR	selective catalytic reduction
SEWPCP	Southeast Water Pollution Control Plant
SO_2	sulfur dioxide
ST	steam turbine
STG	steam turbine generator
THI	Total Hazard Index
TIBL	thermal internal boundary layer
tpy	tons per year
URFs	Unit risk factors
USGS	U.S. Geological Survey
UTM	Universe Transverse Mercator
VISCREEN	visual impact screening model
VOC	volatile organic compound
°F	degrees Fahrenheit
$\mu g/m^3$	micrograms per cubic meter

1.0 INTRODUCTION

On December 4, 2001, the Bay Area Air Quality Management District (BAAQMD) issued a Final Determination of Compliance (FDOC) for the Potrero Unit 7 Project (Potrero Unit 7). Mirant Corporation proposes to modify the Potrero Unit 7 project by adding a proposed project alternative. The proposed alternative relates to the method of cooling the power plant. Mirant is now proposing a wet/dry cooling tower as an alternative to the original once-through cooling system that was analyzed in the original FDOC and other modifications to the project, some of which have been previously presented to the BAAQMD. Mirant is requesting that the California Energy Commission (CEC) certify the project with both proposed cooling systems. These modifications necessitate that the BAAQMD issue a modification to the FDOC.

Modifications to the Potrero PP Unit 7 Project from what was analyzed in the original FDOC are the following:

- The addition of an on-site water treatment plant and a wet/dry cooling tower. This change introduces two new air pollution sources; the cooling tower itself and an odor control system vent. No air pollution sources were associated with the once-through cooling system.

- The reduction in emissions of all criteria air pollutants from the original FDOC. The applicant requested a reduction in emission limits previously[1]. That request was subsequently withdrawn, and is being reinstated here. The majority of the emission reductions contained in that request are included herein. The requested reduction in the unit emissions rate of PM_{10} from the gas turbines is deferred until after compliance source tests are performed.

- A minor relocation of some equipment from the locations that were analyzed in the original FDOC including the two main stacks. The relocation of the equipment was announced by the applicant previously[2] and is only included herein for completeness.

This document is an Authority to Construct/Permit to Operate Application to BAAQMD for the modifications to the Potrero Unit 7 project.

[1] Letter to Marc Pryor, CEC from Mark Harrer, Mirant, dated July 11, 2002. Subject: Potrero Power Plant Unit 7 Project (00-AFC-4) – Submittal of Emission Reduction Request.
[2] Applicant's Revised Site Plan, CEC Docket No. 27438, 11/14/2002.

1.1 OVERVIEW

Mirant proposes to build and operate a 540 net MW combined cycle power generation unit at its Potrero PP in San Francisco, California. Potrero PP is located on the eastern side of the City of San Francisco along the western shore of San Francisco Bay. The location of this facility is shown on Figure 1-1, General Location Map.

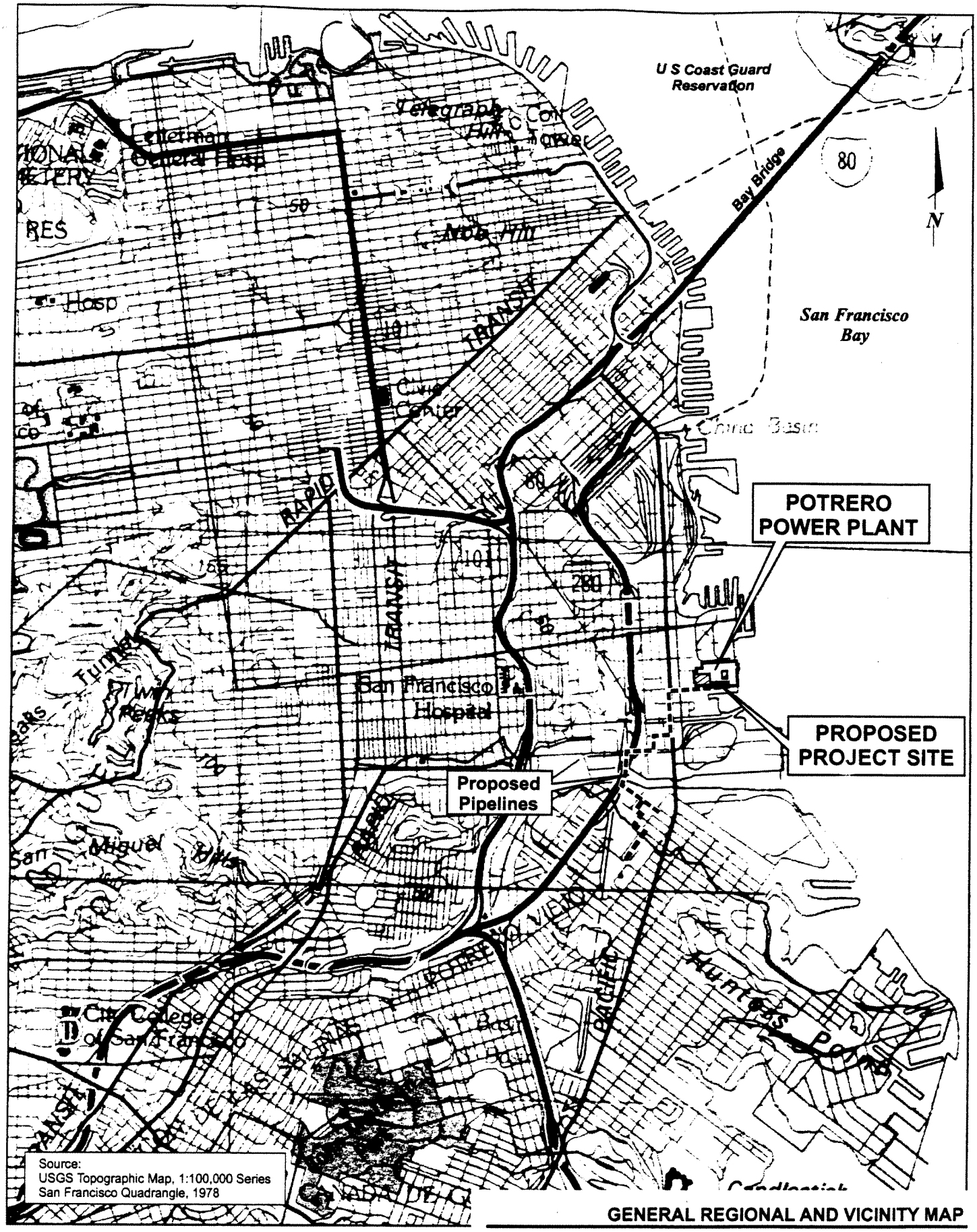
The new unit as originally proposed would employ a cooling system using water from San Francisco Bay. This cooling system is known as a once through cooling system. There are no air pollution emitting components in this cooling system, therefore, no sources related to the cooling system were contained in the original FDOC.

Mirant is now proposing a project alternative that, if it becomes the selected alternative, would take the place of the once through cooling system. In the proposed project alternative, the new unit will be cooled using a plume abated cooling tower. The cooling tower will require a permit because its PM_{10} emissions are estimated to be up to 9.2 tons per year.

Water for the cooling tower will be reclaimed wastewater from San Francisco's Southeast Water Pollution Control Plant (SEWPCP). An on-site wastewater treatment plant will be required to perform tertiary treatment of this water prior to it entering the cooling tower. The on-site water treatment plant will be enclosed but will contain a small vent. A granular activated carbon bed will abate emissions of precursor organic compounds from this vent for odor control. The odor control system vent will emit less than 10 pounds per day of precursor organic compounds (POC). This source is also contained in this application. The updated Potrero Unit 7 Site Plan is shown on Figure 1-2.

Mirant herein also proposes a modification of the Application for Certification (AFC) for Potrero Unit 7 (00-AFC-04) as submitted to the CEC and, correspondingly, a modification of the Authority to Construct (ATC) permit application as submitted to the BAAQMD Application Number 1355. Mirant proposes a reduction in the allowable emission rates of all criteria pollutants from the gas turbines. This reduction results from modifications to the original Potrero Unit 7 operating scenario. The annual hours of operation of each of the gas turbines, and of each of the duct burners, will be reduced. This modification results in lower emissions of all pollutants from the gas turbines.

Emissions increases of PM_{10} and POC from the above modifications to Potrero Unit 7 will be offset according to BAAQMD Regulation 2. Details of the emissions increases as a result of the project and offsets are discussed in Section 4.0 and 6.0, respectively.



0 4000 8000

Scale in Feet
1:48,000

GENERAL REGIONAL AND VICINITY MAP

Cooling Tower System Amendment
Potrero Power Plant Unit 7 Project
Mirant Potrero LLC
San Francisco, California

28066634
July 2003

MIRANT CALIFORNIA, LLC

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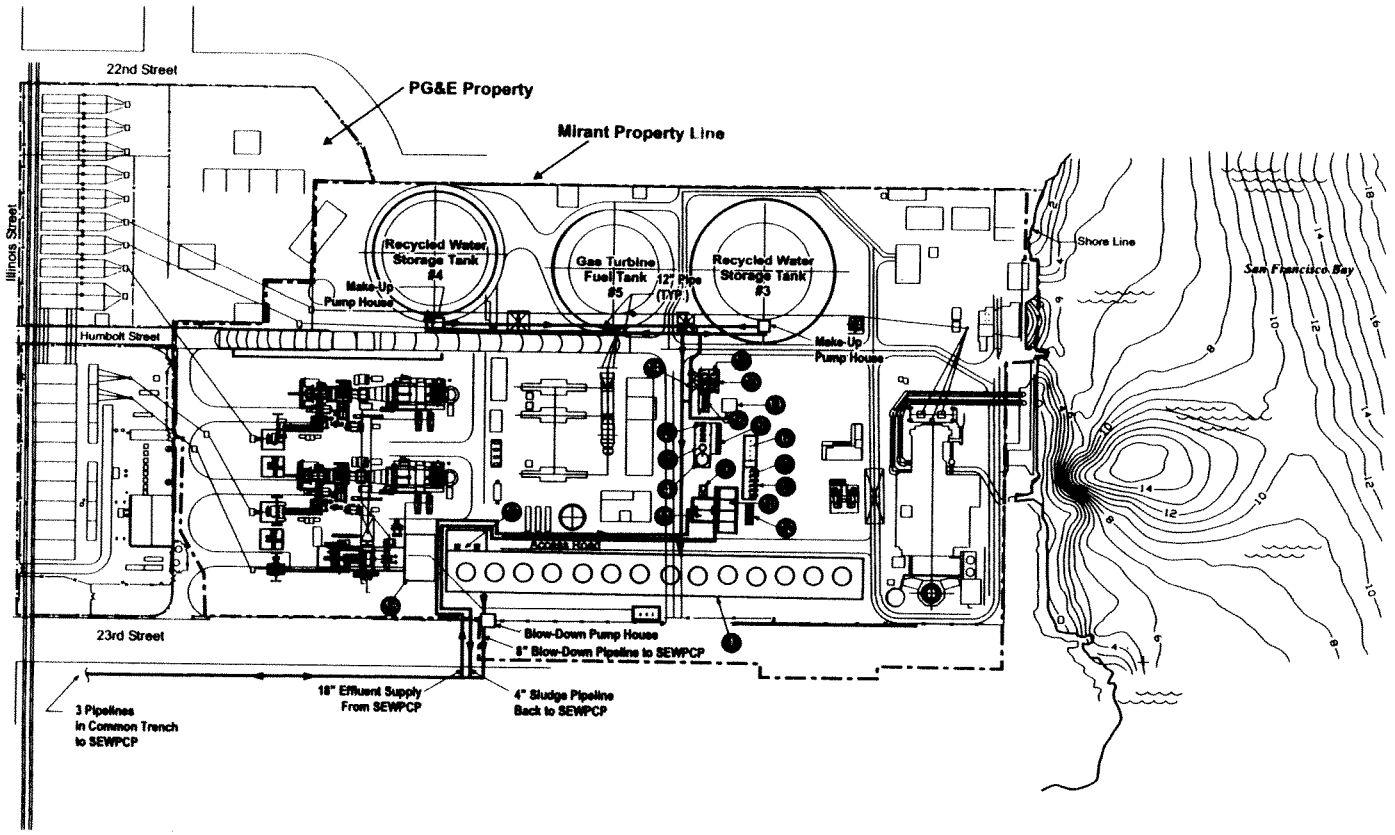
FIGURE 1-1

7/18/03 vsa ...\28066634 Mirant Potrero\Cooling Tower Amend_Jul03\F1-1_AQ_grv map.cdr



1. Wet/Dry Cooling Tower
2. Filtration Pumps
3. Backwash Tank
4. CIP Tank
5. UV Disinfection
6. Electrical Building
7. Membrane Aeration Blowers
8. Aeration Basin Blowers
9. Odor Control System
10. Membrane Bioreactor Basins
11. Aeration Basins
12. Membrane Recirculation Pumps
13. Alum Storage Tanks
14. Truck Unloading
15. Sodium Hydroxide Storage Tanks
16. Sodium Hypochlorite Storage Bins
17. Circulating Pump Water Basin
18. Electrical Building for Cooling Tower Combined with Station Control Building
19. Treated Water Pump Station

N

0 200 400
Scale in Feet

NOTES

1. All backgrounds are preliminary and approximate only.
2. All UTM global coordinates are from Zone 10, North American Datum of 1983.
3. Finished grade elevation at Unit 7 is EL 25' U.S. Tidal/Geodetic Datum referenced from MLLW = 0'-0".

Coordinates for New Stacks

UTM NAD 83 Zone 10 - State Plane NAD83 CA. 3

Southern Stack 1: UTM N4178950.5 - E554206.0
Southern Stack 1: State N2103339.8 - E6016883.9

Northern Stack 2: UTM N4178991.6 - E554204.0
Northern Stack 2: State N2103474.6 - E6016877.0

POTRERO UNIT 7 SITE PLAN

Cooling Tower System Amendment
Potrero Power Plant Unit 7 Project
28066634 Mirant Potrero LLC
July 2003 San Francisco, California

MIRANT CALIFORNIA, LLC

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FIGURE 1-2

7/15/03 vsa \28066634 Mirant Potrero\Cooling Tower Amend_Jul03\F1-2_PotU7siteplan.cdr

Dispersion modeling was conducted to determine the possible impacts of PM_{10} and hazardous air pollutant air emissions. The impacts from the project will not exceed any of the California state or Federal Ambient Air Quality Standards (AAQS). Section 7.0 details the AAQS standards analysis. The proposed project alternative will increase ground level concentrations of PM_{10} but Prevention of Significant Deterioration (PSD) significant limits will not be exceeded.

The modifications to Potrero Unit 7 project will utilize best available control technology (BACT) requirements for PM10. Section 8.0 describes the BACT analysis and proposed technology that will be included to meet BACT requirements, as implemented by the BAAQMD. The modeled health risks of toxic air emission increases are below significance levels as detailed in Section 9.0.

1.2 APPLICANT BACKGROUND INFORMATION

1.2.1 Business Name/Location

Mirant Potrero, LLC – Potrero Power Plant

The Potrero Power Plant site is located on the eastern side of the City of San Francisco along the western shore of San Francisco Bay, as shown in Figure 1-1. In addition to San Francisco, the nearest communities include South San Francisco and Daly City to the south of San Francisco, and Alameda and Oakland across the bay. The project site is essentially flat with elevations ranging from approximately 15 to 35 feet above sea level. The hills of the San Francisco peninsula are a few miles to the west. Figure 1-1 shows the topography within a 3-mile radius of the Potrero PP site. Residential areas are located within a quarter mile from the site boundary. The nearest PSD Class I area is Point Reyes National Seashore, about 33 kilometers to the northwest.

1.2.2 Nature of Business

Potrero PP and the proposed Unit 7 facility are an electric power generation facility.

1.2.3 Person to Contact Regarding Application

Ronald Kino
Manager, Environmental Health and Safety, Mirant
1350 Treat Blvd., Suite 500
Walnut Creek, CA 94596
Phone: (925) 287-3118
Fax: (925) 947-3001
ronald.kino@mirant.com

1.2.4 Type of Entitlement

This document is an application for an Authority to Construct/Permit to Operate for the two new sources at the Potrero Unit 7 Project to be issued by the BAAQMD.

1.2.5 Estimated Construction and Completion Dates

Project construction is scheduled to begin after receipt of CEC approval and to last for 24 months. Operation of Unit 7 is expected soon after construction has ended.

1.2.6 Application Status

This document is an original Authority to Construct/Permit to Operate application for the two new sources.

1.2.7 Operating Schedule

The new sources will be designed and constructed to operate continuously throughout the year, with some allowances for maintenance.

1.2.8 Compliance Certification

Mirant Corporation certifies that all facilities owned or operated by the Mirant Potrero, LLC within the state are in compliance with applicable federal, state, and BAAQMD emission limits and applicable environmental standards.

2.0 DESCRIPTION OF THE NEW EQUIPMENT

The Potrero Power Plant (PP) Unit 7 Project has been described previously in the original FDOC and in AFC number 00-AFC-04, currently before the CEC. The FDOC provides for once-through cooling using water circulated from San Francisco Bay.

In response to concerns regarding potential impacts of once-through cooling on Bay resources, Mirant was requested by the CEC to consider an upland cooling system for the Unit 7 project. The amendment to the AFC presents an upland cooling tower system. It would use recycled water, and is an alternative to the proposed once-through cooling system using Bay water. The upland cooling system would consist of a wet/dry plume-abated cooling tower on the south side of the Potrero PP site and on- and off-site facilities necessary for supplying and treating secondary effluent from San Francisco's SEWPCP to use as cooling water.

2.1 EQUIPMENT

Under this amendment, new upland cooling system facilities would be constructed and operated as part of the project and certain facilities associated with once-through cooling would not be constructed.

This application is intended to supplement and complement the work completed in the original FDOC. To this end, extensive descriptive material provided in the FDOC is not repeated here. Likewise, analyses of project features that are unaffected by a change from once-through cooling to an upland cooling system are not included.

2.1.1 Equipment Differences Between Once-Through Cooling and Wet/Dry Cooling Tower Systems

A wet/dry plume-abated cooling tower system for the Potrero PP Unit 7 steam turbine condenser will require additional equipment to be added and constructed on the existing plant site. The major components associated with the wet/dry cooling tower system include:

- Wet/dry tower and basin
- Associated mechanical equipment
- Pump station and pipeline to convey secondary effluent water from the SEWPCP
- A fiber optic cable between the Potrero PP and the pump station at the SEWPCP.
- Pump stations and pipelines to convey return blowdown and sludge water to the SEWPCP

- Recycled water treatment plant at the Potrero PP
- Existing fuel tanks converted for recycled water storage

With a change from a once-through cooling system to a wet/dry cooling tower system, certain components associated with the once-through system would be eliminated. These items include:

- New or combined cooling water intake structure
- Trash rakes, fish screens, once-through circulating water pumps and motors, and all auxiliary equipment associated with the proposed and once-through intake structure.
- Circulating water discharge piping with diffusers, from condenser outlet to Bay
- Circulating water supply piping between the Unit 7 intake structure and steam turbine condenser

2.2 SYSTEM DESCRIPTION, DESIGN, AND OPERATION

2.2.1 Site Plan

A site plan with the new wet/dry cooling tower system related facilities located on the Potrero PP property is shown in Figure 1-2. This plan also shows the existing Unit 3 steam turbine unit, the existing Units 4, 5, and 6 combustion turbine peaking units, and the proposed Unit 7. Unit 7 would consist of two combustion generator (CTG) and heat recovery steam generator (HRSG) trains and a single steam turbine generator (STC). On-site facilities related to the cooling system include the wet/dry cooling tower, a recycled water treatment plant, two existing tanks for recycled water storage, and associated piping and pumps.

2.2.2 Wet/Dry Cooling Tower

The circulating water cooling system would be a closed-cycle wet/dry mechanical draft tower dedicated to Unit 7. A circulating water pump basin would be constructed near the west end of the wet/dry tower. The pump basin would be approximately 63 feet by 35 feet and would house two 50 percent capacity circulating water pumps. Cooling water would be pumped from the basin to the steam turbine condenser. The cooling water would remove heat from the steam turbine exhaust, condensing the steam to water for reuse in the power plant. A second, side stream of cooling water would pass through a heat exchanger to cool water in the water loop cooling auxiliary equipment in the plant. The heated cooling water leaving the condenser and the heat exchanger would pass to distribution headers located in the cooling tower. This system of distribution headers is located above heat transfer surfaces (called "fill" sections) within the

wet/dry tower. The fill sections comprise the wet section of the wet/dry tower. When needed, the distribution headers also are able to supply a portion of the heated cooling water to tube heat exchangers located above the wet section of the tower. These tube heat exchangers comprise the dry section of the wet/dry tower.

In the wet section of the tower, water from the distribution headers flows as droplets downward through the fill section while fans draw (induce) air upward. This results in heat transfer through both evaporation and convection. Cooling occurs primarily by evaporation in the wet section of the tower. The wet section of the tower operates whenever Unit 7 is in service. The dry section operates only during times of the year when ambient humidity or temperature conditions are such that there is a potential to create a visible plume. When needed for plume abatement, a portion of the hot re-circulating water from the condenser is routed through a series of tube heat exchangers in the dry section. Here the outside surface of the heat exchangers is exposed to the moisture-laden air rising from the wet section. The moisture-laden air exiting the cooling tower is prevented from becoming supersaturated, thereby eliminating the presence of a visible plume. This is effective within the plume abatement design points of 90 percent relative humidity and an ambient air temperature of 29 °F.

The layout of the wet/dry tower is shown on Figure 1-2. The wet/dry tower would consist of 14 cells and measure approximately 62 feet wide by 673 feet long by 69 feet tall. As shown on the site plan, the tower would be parallel to and approximately 30 feet from the nearest part of the south property line. To reduce off-site noise, the wet/dry tower will have an air flow inlet on only one side of the tower, the north side. The south side of the tower will be a solid wall designed to act as a noise barrier, to insure that the noise standard of 75 dBA at the property line is met. The noise level along the south side of the tower is estimated to be 74 dBA at 30 feet. The one-sided wet/dry tower would be slightly taller and longer than a comparable two-sided air inlet tower used in a similar application.

The water source for the wet/dry tower would be secondary effluent from the SEWPCP. The secondary effluent would be treated on the Potrero PP site by a new recycle water treatment plant, discussed below. The treated water would then be pumped either directly to the wet/dry tower or to recycled water storage tanks. Water lost to evaporation, drift, and blowdown during the cooling process would be made up by inflow from the recycled water treatment plant or the storage tanks. Blowdown is necessary to maintain the concentrations of background water contaminants at acceptable operating levels.

The wet/dry cooling tower system would replace the proposed once-through cooling system. This change would mean that the new Unit 7 cooling water intake structure and associated

pumps, fish screens, trash rakes and ancillary equipment would no longer be needed. The discharge pipes and diffusers into the bay would be eliminated as well. Also, the routing of the circulating water supply and discharge piping would be considerably shorter since it would now come from the west end of the wet/dry tower instead of coming from the bay shoreline area. An existing once-through cooling system for Unit 3 would continue to be used. Whereas the once-through cooling proposed in the AFC would have replaced the existing once-through cooling and provided cooling for both Unit 3 and Unit 7, the cooling tower would be dedicated to Unit 7 alone.

The estimated time for constructing the wet/dry cooling tower is 13 months, which includes time for mobilization, pile installation, basin installation, tower erection, and mechanical and electrical equipment installation and hook-up.

2.2.3 Makeup Water Supply

The makeup water supply for the wet/dry tower would be treated secondary effluent pumped from the SEWPCP via a pipeline. A new 18-inch-diameter pipeline would convey approximately 4.6 million gallons per day (mgd) of effluent to the Potrero PP site, where it would be further treated at a new on-site recycled water treatment plant. The water would then be pumped to the wet/dry tower or temporarily stored in existing tanks for use as make-up water to the wet/dry tower. Blowdown from the wet/dry tower would be returned to the SEWPCP in an 8-inch-diameter pipeline. The sludge from the recycled water treatment process would also be returned to the SEWPCP in a separate 4-inch-diameter pipeline.

2.2.4 New Recycled Water Facilities

The major components associated with providing makeup water to the wet/dry tower consist of:

- A pump station and an 18-inch pipeline to convey secondary effluent from San Francisco's SEWPCP to the Potrero PP;
- A recycled water treatment plant at the Potrero PP designed to treat approximately 4.6 mgd of secondary effluent to tertiary recycled water standards;
- A pump station and pipeline at the Potrero PP to convey treated water from the recycled water treatment plant to two existing on-site tanks converted from fuel to water storage;
- A pump station and 4-inch pipeline at the Potrero PP to convey waste activated solids (sludge) produced by the treatment process from the Potrero PP to the solids thickening facility at the SEWPCP;

- An 8-inch pipeline to convey blowdown from the cooling process to the influent sewer at the SEWPCP; and
- A fiber optic cable between the Potrero PP and the pump station at the SEWPCP.

2.2.5 On-Site Recycled Water Treatment and Storage Facilities

The recycled water treatment facilities to be developed on the Potrero PP site would be designed to treat up to 4.6 mgd of secondary effluent to meet CCR Title 22 "disinfected recycled water" standards. The facility would also be designed to reduce ammonia and phosphorus concentrations to improve operability of the cooling process at Unit 7.

Secondary effluent delivered to the site via the 18-inch effluent pipeline would enter a flash mixer and be injected with aluminum sulfate (alum) to bind phosphorus and sodium hydroxide to maintain a set pH. The effluent would be introduced into the reactor tank to coagulate phosphorus and oxidize ammonia and biochemical oxygen demand (BOD), and then flow to MBD tanks housing an immersed membrane filtration system to remove suspended solids. Waste activated solids (sludge) from this process would be pumped from the aeration tanks to the SEWPCP's existing thickeners by way of the 4-inch sludge line. The filtered water would flow to the UV system unit for disinfection. Following the UV disinfection process, sodium hypochlorite would be added to the water to provide a chlorine residual in the treated water. Following UV disinfection, the treated water pump station would convey treated water to storage tanks.

Two of the three existing fuel storage tanks on-site would be converted into recycled water storage tanks (tanks No. 3 and 4). The third tank would remain as a fuel tank. The converted tanks would be refurbished prior to use as water storage tanks. Piping and pumps would be installed to convey treated water from the water storage tanks to the wet/dry tower.

Blowdown from the wet/dry tower would be returned in an 8-inch blowdown pipeline to the influent sewer at the SEWPCP.

Three chemicals would be injected into the process stream at three locations within the treatment facility. Aluminum sulfate (alum) and sodium hydroxide (caustic soda) would be injected upstream of the MBR system, and sodium hypochlorite would be injected before the treated water enters the treated water storage tanks. Sodium hypochlorite would also be delivered to the membrane cleaning process in the MBR system. Each chemical feed system would include two bulk chemical storage tanks (or tote bins in the case of sodium hypochlorite) and chemical metering pumps to deliver chemicals to the application points. Chemical storage tanks would be

installed inside secondary containment basins sized to contain the contents of the largest tank plus an allowance for rainfall and freeboard.

All treatment processes would be covered to minimize the potential for odors. Air drawn from inside the covers would be vented through a granular activated carbon system for odor removal. Aeration basins, membrane tanks, and backwash tanks for the MBR system would be covered and vented through the odor abatement system.

All structures would be supported on end bearing piles ranging in length from 10 to 40 feet. The membrane bioreactor is a partially buried concrete structure with two aeration basins and four membrane basins. The aeration basins are 34 feet long by 16 feet wide, the membrane basins are 16 feet wide by 30 feet long. The disinfection system basin is a partially buried concrete structure 8 feet deep, 7 feet wide, and 30 feet long. Various lightweight tanks, structures, and equipment would be founded on pile-supported concrete slabs.

The proposed recycle water treatment plant would be located on a 0.6-acre site within the Potrero Power Plant Site. The construction period is estimated to be of an 18-month duration.

2.3 FUEL

No fuel will be combusted in either of the two new sources.

2.4 REVISED SITE PLAN

Mirant has made some changes to the locations of some of the equipment of Unit 7. These changes were made to improve the accessibility of Unit 7 equipment for maintenance but did not change the footprint of the major excavation. The northern train (including the HRSG exhaust stack) has been moved approximately 10.46 meters (34.32 feet) and the southern train (including the HRSG exhaust stack) has been moved approximately 12.78 meters (41.93 feet), both to the southwest of the locations in the original FDOC. This move increases the separation between the centerlines of the two exhaust stacks from 120 feet to 135 feet.

The entire steam turbine generator structure has been rotated 90 degrees from the former north-south to an east-west orientation. The control room has been relocated adjacent to the east end of the perimeter of the steam turbine generator structure.

The above changes in the physical layout have been input into the air dispersion models.

3.0 EQUIPMENT SPECIFICATIONS

3.1 EQUIPMENT LIST

This section summarizes the equipment included in this application:

S59	14-Cell plume abated wet/dry cooling tower, 140,000 gallons per minute
S60	Odor control system vent. 5,900 cfm abated by, A60, Granular Activated Carbon Bed
P59	Cooling tower stack
P60	Odor Control System Vent

3.2 COOLING TOWER

Design Conditions:

Summer:

Flow	=	140,000 gpm
Hot Water In	=	93°F
Cold Water Out	=	73°F
Wet Bulb	=	64°F
Relative Humidity	=	50%

Plume Abatement:

Hot Water In	=	72.6°F
Cold Water Out	=	52.6°F
Wet Bulb	=	29°F
Relative Humidity	=	90%

Tower Description:

Model	=	F498-6.0-14
Number of Cells	=	14
Cell Exit Diameter	=	33' – 8"
Motor Size	=	14 @ 250 HP
Exit Velocity – Summer	=	1,798 ft/min
Exit Air Flow – Summer	=	1,601,000 acfm
Exit Velocity – Winter	=	1974 ft/min
Exit Air Flow – Winter	=	1,757,500 acfm

Tower Dimensions:

Fan Deck Height	=	54.6 ft above curb
Discharge Height	=	68.6 ft above curb
Dry Section Coil Height	=	9.5 ft
Wet Section Air Inlet Height	=	28 ft
Length	=	673 ft
Width	=	54 ft 7 in (at base)
Width	=	56 ft (at dry section)

Basin Dimensions:

Width	=	61.5 ft
Length	=	673 ft

3.3 ODOR CONTROL SYSTEM

Manufacturer	Calgon Carbon
Model Number	OCUD-75000
Size	5,900 cfm
Average Turbine Inlet Temperature	Ambient
Differential pressure	TBD
Bed Depth	About 3 feet

Drawings of the Odor Control System are included in Appendix B.

4.0 EXPECTED OPERATIONAL EMISSIONS

This section details the expected emissions from the two new sources and the reduction in emissions from the gas turbines relative to the original applications.

4.1 COOLING TOWER PM_{10} AND HAZARDOUS AIR POLLUTANT (HAP) EMISSIONS

The cooling tower will be a source of PM_{10} (and $PM_{2.5}$). Water circulating within the tower will be captured by a mist eliminator system and returned to the tower. The mist eliminators will allow some water droplets (only 0.0005% or less of the circulating water) to escape the tower as "drift." After leaving the cooling tower the water droplets will evaporate completely, leaving any solid materials as particulate matter. In this analysis, it was assumed that as a worst case, all of the suspended and dissolved solids in the drift would form PM_{10}. The estimated maximum hourly and annual cooling tower PM_{10} emissions are summarized in Table 4-1. These emissions were based on the on-site wastewater treatment plant effluent analysis, assuming a five-fold concentration cycle, and the proposed drift rate of the cooling tower. A portion of the PM_{10} will be hazardous air pollutants. The estimated maximum hourly cooling tower HAP emissions are summarized in Table 4-2. Additional details on the cooling tower PM_{10} emissions calculations are contained in Appendix A.

4.2 ODOR CONTROL SYSTEM CRITERIA POLLUTANT AND HAZARDOUS AIR POLLUTANT EMISSIONS

The on-site wastewater treatment plant will be equipped with an odor control system. Air from the enclosed aeration basins and membrane basins will be withdrawn through ducts and a fan and passed through a granular activated carbon bed to control odors (POC emissions). Total POC emissions from the odor control system will be less than 10 pounds per day. The total POC emissions from the odor control system are presented in Table 4-3. A list of the POC species is presented in Table 4-4. Additional details on the odor control system POC emissions calculations are contained in Appendix A. Drawings of the odor control system are included in Appendix B.

4.3 MODIFIED EMISSIONS FROM THE GAS TURBINES

The annual hours of operation of each of the gas turbines of Potrero Unit 7 will be reduced from a maximum of 8,760 hours (100 percent of the year) to a maximum of 7,446 hours (85 percent of the year). The annual hours of operation of each of the duct burners of Potrero Unit 7 will be reduced from a maximum of 7,090 hours to a maximum of 2,200 hours. The reduced hours of operation will result in lower emissions, and still allow Potrero Unit 7 to supply the power needed for the City of San Francisco.

Mirant will accept conditions of certification specifying these reduced hourly limits. The modification of the operating scenario will result in the reduction of each criteria pollutant by about 23 percent on an annual basis.

The PM_{10} unit emission rates in terms of pounds of PM_{10} emitted per hour for each turbine were also discussed in the previously submitted emission reduction request. At this time the applicant is not proposing a reduction in the allowable PM_{10} unit emission rates. Actual source test data from other similar power plants are becoming increasingly available. While that data show, on average, that the expected PM_{10} emissions will be over 40% lower than what is allowed under the current FDOC, the data also show some unit to unit variability. This variation can only be settled after the Unit 7 turbines are operational and undergo compliance testing. Therefore, Mirant is withholding its request for a reduction in unit emission rates until that time. Mirant is requesting a condition of certification be included to allow the PM_{10} emission limits to be re-evaluated and potentially lowered based on the results of the compliance tests.

A comparison of criteria pollutant annual emission rate from the combustion turbines in the original FDOC and as a result of the proposed emission reduction request is shown in Table 4-5. Revisions to the Conditions of Certification resulting from the reduction in annual emissions are shown in Appendix E.

Criteria pollutant annual emissions for the proposed project alternative including the emissions reduction request and the two new sources contained in this application are shown in Table 4-6.

Table 4-1
PM_{10} Emissions from Cooling Tower

Water Rate	140000	gpm
Drift Rate	0.0005	%
Number of Cells	14	
Maximum TDS+TSS	7015	ppmw
PM_{10} Emission Rate		
lb/hr/cell	**g/s/cell**	**tons/yr/tower**
0.176[a]	2.2E-02[a]	9.2[b]

Notes:
PM_{10} = particulate matter less than 10 microns in diameter
gpm = gallons per minute
ppmw = parts per million by weight
TDS = total dissolved solids
TSS = total suspended solids
a: Maximum Emission Rate.
b: Assumes annualized usage of 7,446 hrs/year.

Table 4-2
HAP Emissions from Cooling Tower

Water Rate	140000	gpm		
Drift Rate	0.0005	%		
Number of Cells	14			
Maximum Concentration			**Emission Rate**	
			lb/hr	**g/s/cell**
Chromium	6.5	µg/L	2.28E-06	2.05E-08
Copper	72.5	µg/L	2.54E-05	2.29E-07
Lead	0.0935	µg/L	3.28E-08	2.95E-10
Mercury	19.5	µg/L	6.84E-06	6.16E-08
Nickel	12.5	µg/L	4.38E-06	3.95E-08
Selenium	2.5	µg/L	8.77E-07	7.90E-09
Zinc	312	µg/L	1.09E-04	9.86E-07

Table 4-3
POC Emissions from Odor Control System

Uncontrolled Emission Factor[1]	**Controlled Emissions[2]**		
lb/yr/mgd	**lb/day**	**lb/year**	**ton/yr**
190	1.22	446.5	0.223

Notes:
POC emissions are based on treating 4.7 million gallons of water per day (mgd).
1: Uncontrolled emission factor obtained from water treatment system designers.
2: Assumes usage of 8760 hours per year and 50% control efficiency as conservative worst case.

Table 4-4
HAP Emissions from Odor Control System

Compound	lb/yr/mgd	lb/year	lb/day	gm/sec
Total VOC	190	446.50	1.22	6.43E-03
Benzene	1.7	4.00	0.01	5.75E-05
Ethyl Benzene	1.2	2.82	0.01	4.06E-05
Toluene	7.3	17.16	0.05	2.47E-04
Xylenes	7	16.45	0.05	2.37E-04
1,1,1 TCA	6.5	15.28	0.04	2.20E-04
Chloroform	4.7	11.05	0.03	1.59E-04
Methylene Chloride	4.3	10.11	0.03	1.45E-04
Tetrachloroethylene	8.5	19.98	0.05	2.88E-04
Acetone	3.20E-02	7.52E-02	2.06E-04	1.08E-06
Methyl Ethyl Ketone	6.40E-03	1.50E-02	4.12E-05	2.17E-07
Methyl Isobutyl Ketone	5.80E-03	1.36E-02	3.73E-05	1.96E-07

Notes:
1: Assumes annualized usage of 4.7 million gallons of water treated per day and 365 days per year.
2: Assumes Granular Activated Carbon (GAC) bed control efficiency of 50 percent.

Table 4-5
Comparison of Criteria Pollutant Annual Emission Rate From the Combustion Turbines (tons per year)

Pollutant	Original Application	Revised Amount[1]
NO_X	178.4	137.9
CO	265.1	205.9
POC	49.1	37.8
SO_2	26.0	19.8
PM_{10}	110.5	86.3

Note:
1: Based on 7,446 hours of total operation per year and 2,200 hours of duct burner operation per year for each turbine.

C4 COOLING TOWER AND ODOR CONTROL SYSTEM ISC MODEL INPUT/OUTPUT (EXCERPTS)

**MODELOPTs:
CONC URBAN ELEV GRDRIS

*** MODEL SETUP OPTIONS SUMMARY ***

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

-- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION. DDPLETE = F
**Model Uses NO WET DEPLETION. WDPLETE = F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
1. Gradual Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.

**Model Accepts Receptors on ELEV Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 Short Term Average(s) of: 1-HR
and Calculates PERIOD Averages

* Run Includes: 15 Source(s); 2 Source Group(s); and 2267 Receptor(s)

**The Model Assumes A Pollutant Type of: XQ

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of PERIOD Averages by Receptor
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 1.4 MB of RAM.

**Input Runstream File: hra.dta
**Output Print File: hra.lst

**MODELOPTs:
CONC URBAN ELEV GRDRIS

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
CT1	0	0.10000E+01	554330.0	4178716.0	7.6	20.91	298.00	9.14	10.26	YES	
CT2	0	0.10000E+01	554344.0	4178716.0	7.6	20.91	298.00	9.14	10.26	YES	
CT3	0	0.10000E+01	554358.0	4178716.0	7.6	20.91	298.00	9.14	10.26	YES	
CT4	0	0.10000E+01	554372.0	4178716.0	7.6	20.91	298.00	9.14	10.26	YES	
CT5	0	0.10000E+01	554386.0	4178715.0	7.6	20.91	298.00	9.14	10.26	YES	
CT6	0	0.10000E+01	554400.0	4178715.0	7.6	20.91	298.00	9.14	10.26	YES	
CT7	0	0.10000E+01	554414.0	4178715.0	7.6	20.91	298.00	9.14	10.26	YES	
CT8	0	0.10000E+01	554428.0	4178715.0	7.6	20.91	298.00	9.14	10.26	YES	
CT9	0	0.10000E+01	554442.0	4178715.0	7.6	20.91	298.00	9.14	10.26	YES	
CT10	0	0.10000E+01	554456.0	4178714.0	7.6	20.91	298.00	9.14	10.26	YES	
CT11	0	0.10000E+01	554470.0	4178714.0	7.6	20.91	298.00	9.14	10.26	YES	
CT12	0	0.10000E+01	554484.0	4178714.0	7.6	20.91	298.00	9.14	10.26	YES	
CT13	0	0.10000E+01	554498.0	4178714.0	7.6	20.91	298.00	9.14	10.26	YES	
CT14	0	0.10000E+01	554512.0	4178714.0	7.6	20.91	298.00	9.14	10.26	YES	
ODORCNT	0	0.10000E+01	554442.3	4178752.8	7.6	6.10	298.00	15.29	0.48	YES	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
	CT1 , CT2 , CT3 , CT4 , CT5 , CT6 , CT7 , CT8 , CT9 , CT10 , CT11 , CT12 ,
	CT13 , CT14 ,
2	ODORCNT ,

**MODELOPTs:
CONC URBAN ELEV GRDRIS

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: CT1

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	18.3,	17.9,	0	12	18.3,	18.5,	0
13	27.4,	24.7,	0	14	27.4,	26.0,	0	15	27.4,	26.4,	0	16	27.4,	26.1,	0	17	27.4,	24.9,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	16.6,	170.5,	0	23	16.6,	147.9,	0	24	16.6,	120.7,	0
25	16.6,	89.8,	0	26	16.6,	56.3,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	27.4,	24.7,	0	32	27.4,	26.0,	0	33	27.4,	26.4,	0	34	27.4,	26.1,	0	35	27.4,	24.9,	0	36	16.6,	205.0,	0

SOURCE ID: CT2

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	27.4,	22.8,	0
13	27.4,	24.7,	0	14	27.4,	26.0,	0	15	27.4,	26.4,	0	16	27.4,	26.1,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	16.6,	170.5,	0	23	16.6,	147.9,	0	24	16.6,	120.7,	0
25	16.6,	89.8,	0	26	16.6,	56.3,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	27.4,	24.7,	0	32	27.4,	26.0,	0	33	27.4,	26.4,	0	34	27.4,	26.1,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

SOURCE ID: CT3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	27.4,	22.8,	0
13	27.4,	24.7,	0	14	27.4,	26.0,	0	15	27.4,	26.4,	0	16	27.4,	26.1,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	16.6,	170.5,	0	23	16.6,	147.9,	0	24	16.6,	120.7,	0
25	16.6,	89.8,	0	26	16.6,	56.3,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

SOURCE ID: CT4

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	27.4,	22.8,	0
13	27.4,	24.7,	0	14	27.4,	26.0,	0	15	27.4,	26.4,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	16.6,	170.5,	0	23	16.6,	147.9,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	38.0,	73.5,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: CT5

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	27.4,	20.1,	0	12	27.4,	22.8,	0
13	27.4,	24.7,	0	14	27.4,	26.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	16.6,	170.5,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	38.0,	73.5,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

SOURCE ID: CT6

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	27.4,	20.1,	0	12	27.4,	22.8,	0
13	27.4,	24.7,	0	14	27.4,	26.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	16.6,	170.5,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	38.0,	73.5,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

SOURCE ID: CT7

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	16.6,	117.2,	0
13	16.6,	144.8,	0	14	16.6,	168.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	16.6,	170.5,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	38.0,	73.5,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

S ID: CT8

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	16.6,	117.2,	0
13	16.6,	144.8,	0	14	16.6,	168.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	38.0,	68.9,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	38.0,	73.5,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: CT9

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	16.6,	117.2,	0
13	16.6,	144.8,	0	14	16.6,	168.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	38.0,	68.9,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	38.0,	73.5,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

SOURCE ID: CT10

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	16.6,	117.2,	0
13	16.6,	144.8,	0	14	16.6,	168.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	38.0,	62.4,	0	22	38.0,	68.9,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	16.6,	56.3,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

SOURCE ID: CT11

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	38.0,	62.4,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	16.6,	117.2,	0
13	16.6,	144.8,	0	14	16.6,	168.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	38.0,	62.4,	0	22	38.0,	68.9,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	16.6,	56.3,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

SOURCE ID: CT12

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	38.0,	55.9,	0	3	38.0,	62.4,	0	4	38.0,	68.9,	0	5	38.0,	73.4,	0	6	38.0,	75.8,	0
7	38.0,	75.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	16.6,	117.2,	0
13	16.6,	144.8,	0	14	16.6,	168.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	38.0,	55.9,	0	21	38.0,	62.4,	0	22	38.0,	68.9,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	16.6,	56.3,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

**MODELOPTs:
CONC URBAN ELEV GRDRIS

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: CT13

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	38.0,	55.9,	0	3	38.0,	62.4,	0	4	38.0,	68.9,	0	5	38.0,	73.4,	0	6	38.0,	75.8,	0
7	38.0,	75.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	16.6,	117.2,	0
13	16.6,	144.8,	0	14	16.6,	168.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	38.0,	55.9,	0	21	38.0,	62.4,	0	22	38.0,	68.9,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	16.6,	56.3,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

SOURCE ID: CT14

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	38.0,	49.6,	0	2	38.0,	55.9,	0	3	38.0,	62.4,	0	4	38.0,	68.9,	0	5	38.0,	73.4,	0	6	38.0,	75.8,	0
7	38.0,	75.8,	0	8	16.6,	56.3,	0	9	16.6,	21.0,	0	10	16.6,	52.3,	0	11	16.6,	86.1,	0	12	16.6,	117.2,	0
13	16.6,	144.8,	0	14	16.6,	168.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	38.0,	49.6,	0	20	38.0,	55.9,	0	21	38.0,	62.4,	0	22	38.0,	68.9,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	16.6,	56.3,	0	27	16.6,	21.0,	0	28	16.6,	52.3,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
31	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

SOURCE ID: ODORCNT

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	16.6,	205.5,	0	2	16.6,	199.8,	0	3	16.6,	188.0,	0	4	16.6,	170.5,	0	5	16.6,	147.9,	0	6	16.6,	120.7,	0
7	16.6,	89.8,	0	8	16.6,	56.3,	0	9	0.0,	0.0,	0	10	0.0,	0.0,	0	11	16.6,	86.1,	0	12	16.6,	117.2,	0
13	16.6,	144.8,	0	14	16.6,	168.0,	0	15	16.6,	186.0,	0	16	16.6,	198.4,	0	17	16.6,	204.8,	0	18	16.6,	205.0,	0
19	16.6,	205.5,	0	20	16.6,	199.8,	0	21	16.6,	188.0,	0	22	16.6,	170.5,	0	23	38.0,	73.4,	0	24	38.0,	75.8,	0
25	38.0,	75.8,	0	26	38.0,	73.5,	0	27	38.0,	69.0,	0	28	0.0,	0.0,	0	29	16.6,	86.1,	0	30	16.6,	117.2,	0
	16.6,	144.8,	0	32	16.6,	168.0,	0	33	16.6,	186.0,	0	34	16.6,	198.4,	0	35	16.6,	204.8,	0	36	16.6,	205.0,	0

URBAN ELEV GRDRIS

*** THE SUMMARY OF MAXIMUM PERIOD (8784 HRS) RESULTS ***

** CONC OF XQ IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
1	1ST HIGHEST VALUE IS	26.87925 AT	554608.00,	4178792.00,	0.40,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	26.25821 AT	554633.00,	4178792.00,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	26.00610 AT	554633.00,	4178767.00,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	25.94031 AT	554599.00,	4178770.00,	0.60,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	25.44065 AT	554599.00,	4178795.00,	0.60,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	24.66989 AT	554608.00,	4178767.00,	0.40,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	24.06681 AT	554658.00,	4178792.00,	0.00,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	22.36058 AT	554658.00,	4178817.00,	0.00,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	22.06079 AT	554658.00,	4178767.00,	0.00,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	22.01640 AT	554633.00,	4178817.00,	0.00,	0.00)	DC	NA
2	1ST HIGHEST VALUE IS	42.20484 AT	554599.00,	4178820.00,	0.60,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	38.63365 AT	554608.00,	4178817.00,	0.40,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	38.13252 AT	554441.00,	4178695.00,	2.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	37.02274 AT	554599.00,	4178795.00,	0.60,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	34.95521 AT	554608.00,	4178842.00,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	34.47420 AT	554599.00,	4178847.00,	0.10,	0.00)	DC	NA
	7TH HIGHEST VALUE IS	32.43603 AT	554616.00,	4178847.00,	0.00,	0.00)	DC	NA
	8TH HIGHEST VALUE IS	31.98240 AT	554416.00,	4178695.00,	2.10,	0.00)	DC	NA
	9TH HIGHEST VALUE IS	31.90977 AT	554608.00,	4178792.00,	0.40,	0.00)	DC	NA
	10TH HIGHEST VALUE IS	30.54140 AT	554633.00,	4178842.00,	0.00,	0.00)	DC	NA

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF XQ IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
1	HIGH 1ST HIGH VALUE IS	407.63910	ON 92030624: AT (	554283.00,	4178642.00,	5.70,	0.00)	DC	NA
	HIGH 2ND HIGH VALUE IS	378.71396	ON 92020323: AT (	554283.00,	4178642.00,	5.70,	0.00)	DC	NA
2	HIGH 1ST HIGH VALUE IS	1420.70264	ON 92100708: AT (	554441.00,	4178695.00,	2.00,	0.00)	DC	NA
	HIGH 2ND HIGH VALUE IS	1400.81653	ON 92111423: AT (	554441.00,	4178695.00,	2.00,	0.00)	DC	NA

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

C5 ACE 2588 MODEL OUTPUT (EXCERPTS)

***** A C E 2 5 8 8 --- ASSESSMENT OF CHEMICAL EXPOSURE FOR AB 2588 --- VERSION 93288 *****

*** A MULTI-SOURCE, MULTI-POLLUTANT, MULTI-PATHWAY RISK ASSESSMENT MODEL

DEVELOPED BY APPLIED MODELING INC. AND SANTA BARBARA COUNTY APCD ***

Distributed and Maintained by CAPCOA

*** INPUT MODELING PARAMETERS ***

DISPERSION MODELING OPTION =	1
RISK ASSESSMENT OPTION =	0
NONCANCER ACUTE OPTION =	1
DIAGNOSTIC PRINT OUTPUT OPTION =	1
NUMBER OF RECEPTORS =	2267
NUMBER OF SOURCES =	2
NUMBER OF POLLUTANTS =	25
NUMBER OF DISPERSION MODELING HOURS =	8784
NUMBER OF DISPERSION MODELING DAYS =	366

IDODIS = 1 ==> ISCST DISPERSION MODELING WITH SEQUENTIAL METEOROLOGY
ANNUAL CONCENTRATIONS COMPUTED AS AVERAGES OF 1-HOUR CONC.

IDORISK = 0 ==> FULL MODEL RUN FOR RISK ASSESSMENT FROM ALL SOURCES AT ALL RECEPTORS

IDOACU = 1 ==> NONCANCER ACUTE EXPOSURE PERFORMED

IDOPRT = 1 ==> DIAGNOSTIC PRINT OUTPUT CREATED

IDENTIFICATION NUMBERS OF MODELED POLLUTANTS:

1	9	13	20	30	36	38	70	83	87	91	96	110	111	122
130	134	135	137	145	151	152	167	168	194					

*** POLLUTANT-SPECIFIC DATA ***

NAME	SYMBOL	NUM	UNIT RISK (ug/m3)-1	POTENCY (mg/kg-d)-1	ACUTE AEL (ug/m3)	CHRONIC AEL (ug/m3)	ORAL DOSE (mg/kg-d)	CHRONIC TOX ENDPOINTS CV	CN	IM	KI	LI	RP	RE	SK	ACUTE TOX ENDPOINTS CV	CN	IM	KI	LI	RP	RE	EY
Acetaldehyde	ACETA	1	2.70E-06	0.00E+00	3.60E+04	9.00E+00	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Ammonia	NH3	9	0.00E+00	0.00E+00	3.20E+03	2.00E+02	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Benzene	BENZE	13	2.90E-05	0.00E+00	1.30E+03	6.00E+01	0.00E+00	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Butadiene-1,3	BUTAD	20	1.70E-04	0.00E+00	2.20E+02	2.00E+01	0.00E+00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
Chloroform	CHCl3	30	5.30E-06	0.00E+00	1.50E+02	3.00E+02	0.00E+00	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0
Chromium (hex.)	Cr	36	1.50E-01	4.20E-01	1.00E-01	2.00E-01	2.00E-02	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Copper	Cu	38	0.00E+00	0.00E+00	1.00E+02	2.40E+00	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Formaldehyde	HCHO	70	6.00E-06	0.00E+00	9.40E+01	3.00E+00	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Lead	Pb	83	1.20E-05	8.50E-03	6.00E+00	1.50E+00	0.00E+00	1	1	1	1	0	1	0	0	1	1	1	1	0	1	0	1
Mercury	Hg	87	0.00E+00	0.00E+00	1.80E+00	9.00E-02	3.00E-04	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Methyl chloroform	TCA11	91	0.00E+00	0.00E+00	6.80E+04	1.00E+03	0.00E+00	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Methylene chloride	METCL	96	1.00E-06	0.00E+00	1.40E+04	4.00E+02	0.00E+00	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Naphthalene	NAPTH	110	0.00E+00	0.00E+00	5.00E+03	9.00E+00	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Nickel	Ni	111	2.60E-04	0.00E+00	6.00E+00	5.00E-02	5.00E-02	1	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0
Perchloroethylene	PCE	122	5.90E-06	0.00E+00	2.00E+04	3.50E+01	0.00E+00	0	0	0	1	1	0	0	0	0	1	0	0	0	0	1	1
Benzo(A)Pyrene	PAH	130	1.10E-03	1.20E+01	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Propylene	PROPL	134	0.00E+00	0.00E+00	0.00E+00	3.00E+03	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Propylene oxide	PROX	135	3.70E-06	0.00E+00	3.10E+03	3.00E+01	0.00E+00	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1
Selenium	Se	137	0.00E+00	0.00E+00	2.00E+01	2.00E+01	0.00E+00	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
Toluene	TOL	145	0.00E+00	0.00E+00	3.70E+04	3.00E+02	0.00E+00	0	1	0	0	0	1	1	0	0	1	0	0	0	0	1	1
Xylene	XYLEN	151	0.00E+00	0.00E+00	2.20E+04	7.00E+02	0.00E+00	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Zinc	Zn	152	0.00E+00	0.00E+00	5.00E+01	3.50E+01	0.00E+00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0
Ethyl Benzene	ETHBE	167	0.00E+00	0.00E+00	4.34E+04	2.00E+03	0.00E+00	0	0	1	1	1	1	0	0	0	0	0	0	0	0	1	1
Hexane	HEXNE	168	0.00E+00	0.00E+00	0.00E+00	7.00E+03	0.00E+00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MethylEthelKetone	MEK	194	0.00E+00	0.00E+00	1.30E+04	1.00E+03	0.00E+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

TOTAL NUMBER OF MODELED POLLUTANTS = 25

NUMBER OF CARCINOGENIC POLLUTANTS = 12

1 13 20 30 36 70 83 96 111 122
130 135

NUMBER OF MULTIPATHWAY POLLUTANTS = 5

36 83 87 111 130

NUMBER OF POLLUTANTS WITH ACUTE NON-CANCER RISK = 22

1 9 13 20 30 36 38 70 83 87
91 96 110 111 122 135 137 145 151 152
167 194

MAXIMUM NUMBER OF ACUTE TOXICOLOGICAL ENDPOINTS = 6

NUMBER OF POLLUTANTS WITH CHRONIC NON-CANCER RISK = 24

1 9 13 20 30 36 38 70 83 87
91 96 110 111 122 134 135 137 145 151
152 167 168 194

MAXIMUM NUMBER OF CHRONIC TOXICOLOGICAL ENDPOINTS = 5

REQUIRED TOTAL ARRAY SIZE = 340996 WORDS

*** INPUT SOURCE EMISSION RATES ****

FOR SOURCE # 1 0 CT CELLS 1-14
OPERATING HOURS = 8784.00 SURFACE AREA (m2) = 1.000E+00 DEPOSITION ADJUST. FACTOR = 1.00000

POLLUTANT NAME	POLLUTANT NUMBER	1-HOUR RATE (g/s)	1-HOUR RATE (lb/hr)	ANNUAL RATE (g/s)	ANNUAL RATE (lb/yr)
ACETA	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NH3	9	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	13	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BUTAD	20	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CHCl3	30	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cr	36	2.050E-08	1.627E-07	2.050E-08	1.429E-03
Cu	38	2.290E-07	1.817E-06	2.290E-07	1.596E-02
HCHO	70	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb	83	2.950E-10	2.341E-09	2.950E-10	2.057E-05
Hg	87	6.160E-08	4.889E-07	6.160E-08	4.294E-03
TCA11	91	0.000E+00	0.000E+00	0.000E+00	0.000E+00
METCL	96	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NAPTH	110	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ni	111	3.950E-08	3.135E-07	3.950E-08	2.754E-03
PCE	122	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PAH	130	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROPL	134	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROX	135	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Se	137	7.900E-09	6.270E-08	7.900E-09	5.507E-04
TOL	145	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XYLEN	151	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Zn	152	9.860E-07	7.825E-06	9.860E-07	6.874E-02
ETHBE	167	0.000E+00	0.000E+00	0.000E+00	0.000E+00
HEXNE	168	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MEK	194	0.000E+00	0.000E+00	0.000E+00	0.000E+00

FOR SOURCE # 2 0 ODOR CONTROL
OPERATING HOURS = 8784.00 SURFACE AREA (m2) = 1.000E+00 DEPOSITION ADJUST. FACTOR = 1.00000

POLLUTANT NAME	POLLUTANT NUMBER	1-HOUR RATE (g/s)	1-HOUR RATE (lb/hr)	ANNUAL RATE (g/s)	ANNUAL RATE (lb/yr)
ACETA	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NH3	9	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	13	5.750E-05	4.563E-04	5.750E-05	4.009E+00
BUTAD	20	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CHCl3	30	1.590E-04	1.262E-03	1.590E-04	1.108E+01

Cr	36	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cu	38	0.000E+00	0.000E+00	0.000E+00	0.000E+00
HCHO	70	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb	83	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Hg	87	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TCA11	91	2.200E-04	1.746E-03	2.200E-04	1.534E+01
METCL	96	1.450E-04	1.151E-03	1.450E-04	1.011E+01
NAPTH	110	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ni	111	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PCE	122	2.880E-04	2.286E-03	2.880E-04	2.008E+01
PAH	130	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROPL	134	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROX	135	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Se	137	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOL	145	2.470E-04	1.960E-03	2.470E-04	1.722E+01
XYLEN	151	2.370E-04	1.881E-03	2.370E-04	1.652E+01
Zn	152	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ETHBE	167	4.060E-05	3.222E-04	4.060E-05	2.830E+00
HEXNE	168	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MEK	194	2.170E-07	1.722E-06	2.170E-07	1.513E-02

*** INPUT FACILITY-WIDE EMISSION RATES ***

POLLUTANT NAME	POLLUTANT NUMBER	1-HOUR RATE (g/s)	1-HOUR RATE (lb/hr)	ANNUAL RATE (g/s)	ANNUAL RATE (lb/yr)
ACETA	1	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NH3	9	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	13	5.750E-05	4.563E-04	5.750E-05	4.009E+00
BUTAD	20	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CHCl3	30	1.590E-04	1.262E-03	1.590E-04	1.108E+01
Cr	36	2.050E-08	1.627E-07	2.050E-08	1.429E-03
Cu	38	2.290E-07	1.817E-06	2.290E-07	1.596E-02
HCHO	70	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb	83	2.950E-10	2.341E-09	2.950E-10	2.057E-05
Hg	87	6.160E-08	4.889E-07	6.160E-08	4.294E-03
TCA11	91	2.200E-04	1.746E-03	2.200E-04	1.534E+01
METCL	96	1.450E-04	1.151E-03	1.450E-04	1.011E+01
NAPTH	110	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ni	111	3.950E-08	3.135E-07	3.950E-08	2.754E-03
PCE	122	2.880E-04	2.286E-03	2.880E-04	2.008E+01
PAH	130	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROPL	134	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROX	135	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Se	137	7.900E-09	6.270E-08	7.900E-09	5.507E-04
TOL	145	2.470E-04	1.960E-03	2.470E-04	1.722E+01
XYLEN	151	2.370E-04	1.881E-03	2.370E-04	1.652E+01
Zn	152	9.860E-07	7.825E-06	9.860E-07	6.874E-02
ETHBE	167	4.060E-05	3.222E-04	4.060E-05	2.830E+00
HEXNE	168	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MEK	194	2.170E-07	1.722E-06	2.170E-07	1.513E-02

*** 70-YEAR LIFETIME CANCER RISK BY SOURCE FOR PEAK RECEPTOR # 27 ***

SOURCE	INHALE	DERMAL	SOIL	WATER	PLANTS	ANIMAL	MOTHER MILK	SUM
1	5.725E-08	8.798E-11	4.158E-10	0.000E+00	1.683E-10	0.000E+00	0.000E+00	5.792E-08
2	1.838E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.838E-07
SUM	2.410E-07	8.798E-11	4.158E-10	0.000E+00	1.683E-10	0.000E+00	0.000E+00	2.417E-07

RECEPTOR RISK OF 2.417E-07 IS BELOW SIGNIFICANT RISK LEVEL OF 1.000E-05

RECEPTOR RISK OF 2.417E-07 IS BELOW IMPACT ZONE RISK LEVEL OF 1.000E-06

*** 70-YEAR LIFETIME CANCER RISK BY POLLUTANT FOR PEAK RECEPTOR # 27 ***

POLLUTANT	INHALE	DERMAL	SOIL	WATER	PLANTS	ANIMAL	MOTHER MILK	SUM
ACETA	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BENZE	7.038E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.038E-08
BUTAD	0.000E+00	0.000E+00	0.000E 00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CHCl3	3.557E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.557E-08
Cr	5.706E-08	8.798E-11	4.157E-10	0.000E+00	1.683E-10	0.000E+00	0.000E+00	5.773E-08
HCHO	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pb	6.568E-14	2.562E-15	1.211E-13	0.000E+00	5.084E-14	0.000E+00	0.000E+00	2.402E-13
METCL	6.120E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.120E-09
Ni	1.906E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.906E-10
PCE	7.171E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.171E-08
PAH	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PROX	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SUM	2.410E-07	8.798E-11	4.158E-10	0.000E+00	1.683E-10	0.000E+00	0.000E+00	2.417E-07

RECEPTOR RISK OF 2.417E-07 IS BELOW SIGNIFICANT RISK LEVEL OF 1.000E-05

RECEPTOR RISK OF 2.417E-07 IS BELOW IMPACT ZONE RISK LEVEL OF 1.000E-06

*** MAXIMUM ACUTE HAZARD INDEX BY POLLUTANT ***

POLLUTANT	PEAK CONC (ug/m3)	BACKGR (ug/m3)	TOTAL (ug/m3)	AEL (ug/m3)	HAZARD INDEX	RECEPTOR
ACETA	0.000E+00	0.000E+00	0.000E+00	3.600E+04	0.000E+00	0
NH3	0.000E+00	0.000E+00	0.000E+00	3.200E+03	0.000E+00	0
BENZE	8.169E-02	0.000E+00	8.169E-02	1.300E+03	6.284E-05	15
BUTAD	0.000E+00	0.000E+00	0.000E+00	2.200E+02	0.000E+00	0
CHCl3	2.259E-01	0.000E+00	2.259E-01	1.500E+02	1.506E-03	15
Cr	8.357E-06	0.000E+00	8.357E-06	1.000E-01	8.357E-05	93
Cu	9.335E-05	0.000E+00	9.335E-05	1.000E+02	9.335E-07	93
HCHO	0.000E+00	0.000E+00	0.000E+00	9.400E+01	0.000E+00	0
Pb	1.203E-07	0.000E+00	1.203E-07	6.000E+00	2.004E-08	93
Hg	2.511E-05	0.000E+00	2.511E-05	1.800E+00	1.395E-05	93
TCA11	3.126E-01	0.000E+00	3.126E-01	6.800E+04	4.596E-06	15
METCL	2.060E-01	0.000E+00	2.060E-01	1.400E+04	1.471E-05	15
NAPTH	0.000E+00	0.000E+00	0.000E+00	5.000E+03	0.000E+00	0
Ni	1.610E-05	0.000E+00	1.610E-05	6.000E+00	2.684E-06	93
PCE	4.092E-01	0.000E+00	4.092E-01	2.000E+04	2.046E-05	15
PROX	0.000E+00	0.000E+00	0.000E+00	3.100E+03	0.000E+00	0
Se	3.220E-06	0.000E+00	3.220E-06	2.000E+01	1.610E-07	93
TOL	3.509E-01	0.000E+00	3.509E-01	3.700E+04	9.484E-06	15
XYLEN	3.367E-01	0.000E+00	3.367E-01	2.200E+04	1.530E-05	15
Zn	4.019E-04	0.000E+00	4.019E-04	5.000E+01	8.039E-06	93
ETHBE	5.768E-02	0.000E+00	5.768E-02	4.340E+04	1.329E-06	15
MEK	3.083E-04	0.000E+00	3.083E-04	1.300E+04	2.371E-08	15

*** MAXIMUM CHRONIC EXPOSURE BY POLLUTANT FROM ALL SOURCES ***

POL.	PATHWAY DOSE (mg/kg-d) INHALE	DERMAL	SOIL	WATER	PLANTS	ANIMAL	MOT MILK	NON-INH DOSE SUM	ACCEPTABL ORAL DOSE	INH CONC (ug/m3)	BACKGR (ug/m3)	AEL (ug/m3)	HAZARD INDEX	REC.
ACETA	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.00E+00	0.00E+00	0
NH3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E+02	0.00E+00	0
BENZE	6.93E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-03	0.00E+00	6.00E+01	4.04E-05	27
BUTAD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E+01	0.00E+00	0
CHCl3	1.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E+02	2.24E-05	27
Cr	1.57E-10	3.03E-10	1.43E-09	0.00E+00	5.80E-10	0.00E+00	0.00E+00	2.32E-09	2.00E-02	5.51E-07	0.00E+00	2.00E-01	2.87E-06	173
Cu	1.76E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.16E-06	0.00E+00	2.40E+00	2.56E-06	173
HCHO	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E+00	0.00E+00	0
Pb	2.27E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.93E-09	0.00E+00	1.50E+00	5.29E-09	173
Hg	4.73E-10	9.12E-10	4.31E-09	0.00E+00	5.92E-09	0.00E+00	0.00E+00	1.11E-08	3.00E-04	1.66E-06	0.00E+00	9.00E-02	5.55E-05	173
TCA11	2.65E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.29E-03	0.00E+00	1.00E+03	9.29E-06	27
METCL	1.75E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.12E-03	0.00E+00	4.00E+02	1.53E-05	27
NAPTH	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.00E+00	0.00E+00	0
Ni	3.03E-10	2.34E-09	2.76E-09	0.00E+00	1.89E-09	0.00E+00	0.00E+00	6.99E-09	5.00E-02	1.06E-06	0.00E+00	5.00E-02	2.14E-05	173
PCE	3.47E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-02	0.00E+00	3.50E+01	3.47E-04	27
PROPL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E+03	0.00E+00	0
PROX	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E+01	0.00E+00	0
Se	6.07E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.12E-07	0.00E+00	2.00E+01	1.06E-08	173
TOL	2.98E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-02	0.00E+00	3.00E+02	3.47E-05	27
XYLEN	2.86E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-02	0.00E+00	7.00E+02	1.43E-05	27
Zn	7.57E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-05	0.00E+00	3.50E+01	7.57E-07	173
ETHRE	4.90E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-03	0.00E+00	2.00E+03	8.57E-07	27
'	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.00E+03	0.00E+00	0
'	2.62E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.16E-06	0.00E+00	1.00E+03	9.16E-09	27

*** SUMMARY OF MAXIMUM PREDICTED RISKS ***

CANCER RISK ASSESSMENT

SIGNIFICANT RISK LEVEL =	1.000E-05
IMPACT ZONE RISK LEVEL =	1.000E-06
MAXIMUM PEAK RISK =	2.417E-07
PREDICTED AT RECEPTOR #	27
TOTAL EXCESS BURDEN =	0.000E+00

0 RECEPTORS WITH RISK EXCEEDING SIGNIFICANT RISK LEVEL OF 1.000E-05

ACUTE EXPOSURE TO NON-CANCER POLLUTANTS

SIGNIFICANT HAZARD INDEX =	1.0000
MAXIMUM HAZARD INDEX FOR AN ENDPOINT =	0.0016
PREDICTED AT RECEPTOR #	15

0 RECEPTORS WITH HAZARD INDEX .GE. 1.0000 FOR ONE OR MORE TOXICOLOGICAL ENDPOINTS

CHRONIC EXPOSURE TO NON-CANCER POLLUTANTS

SIGNIFICANT HAZARD INDEX =	1.0000
MAXIMUM HAZARD INDEX FOR AN ENDPOINT =	0.0004
PREDICTED AT RECEPTOR #	27

0 RECEPTORS WITH HAZARD INDEX .GE. 1.0000 FOR ONE OR MORE TOXICOLOGICAL ENDPOINTS

APPENDIX D

BAAQMD PERMIT APPLICATION FORMS

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street . . . San Francisco, CA 94109
(415) 749-4990 . . . FAX (415) 749-5030

FORM P-101B

AUTHORITY TO CONSTRUCT
PERMIT TO OPERATE

Application Information

Application No. (assigned by District)	Plant No. 26 (leave blank if unknown)
Business Name Mirant Potrero, LLC	
Equipment Description see attached application	
If you qualify for the District's **Accelerated Permitting Program,** (see reverse for criteria), check here ☐	
If you are applying to permit or to register **portable equipment**, in accordance with Regulation 2-1-220, check here ☐	

New Plant Information

If you have not previously been assigned a Plant Number by the District or if you want to update any Plant data that you have previously supplied to the District, please complete the New Plant Information box below.

Plant Address (equipment location)		
City	State	Zip
Mailing Address		
City	State	Zip
Plant Contact		
Title		
Telephone	Fax	
E-mail Address		

Application Contact Information (*if different from plant contact*)

All correspondence regarding this application will be sent to the above plant contact person unless you wish to designate a different contact for this application.

Application Contact Ronald Kino		
Title/Company Manager, Environmental Health and Safety		
Mailing Address 1350 Treat Blvd., Suite 500		
City Walnut Creek	State CA	Zip 94596
Telephone (925) 287-3118	Fax (925) 947-3001	
E-mail Address ronald.kino@mirant.com		

Small Business Certification

You are entitled to a reduced permit fee if you qualify as a small business as defined by BAAQMD Regulation 3. In order to qualify, you must certify that your business meets all of the following criteria:

- ☐ The principal office is in California, and its officers live in California.
- ☐ The business is independently owned and operated.
- ☐ The business is not dominant in its field of operation and is not an affiliate of a non-small business.
- ☐ If a non-manufacturer, it does not employ more than 25 persons and its annual receipts do not exceed $1 million.
- ☐ If a manufacturer, it does not employ more than 50 persons and its annual receipts do not exceed $5 million.

Signature: Date:

Accelerated Permitting Program

The Accelerated Permitting Program entitles you to install and operate qualifying sources of air pollution and abatement equipment **without waiting for the District to issue a Permit to Operate**. In order to participate in this program you must certify that your project will meet all of the following criteria. Please acknowledge each m by checking each box and signing below.

- ☐ Uncontrolled emissions of any single pollutant are each less than 10 lb/highest day, or the equipment has been precertified by the BAAQMD.
- ☐ Emissions of toxic compounds do not exceed the trigger levels identified in Table 2-1-316 (see District Regulation 2, Rule 1).
- ☐ For replacement of abatement equipment, the new equipment must have an equal or greater overall abatement efficiency for all pollutants than the equipment being replaced.
- ☐ The project is not subject to public notice requirements (source is either more than 1000 ft. from the nearest school, or source does not emit any toxic compound in table 2-1-316).
- ☐ The minimum permit fee payment of $438.00 per source is included with the application. If you certify that you meet the small business criteria by completing that portion of this form, the minimum permit fee payment is $269.00 per source. Additional permit fees may be assessed at the time the application is evaluated.

Signature: Date:

All Applications

All applications should contain the following additional information:

- ☒ Completed data form(s) for each piece of equipment (data forms listed below)
- ☒ A facility map, drawn roughly to scale, that locates the equipment and its emission points
- ☒ Project/equipment description, manufacturer's data
- ☒ Pollutant flow diagram
- ☒ Discussion/calculations relating to emissions from the equipment
- ☐ If a new Plant, a local street map showing the location of your business

ıereby certify that the sources in this permit application: *(check one)*

☐ Are ☒ Are not within 1,000 feet of the outer boundary of the nearest school

Has an Environmental Impact Report (EIR) or other California Environmental Quality Act (CEQA) document been prepared for this project? ☐ no ☒ yes If yes, by whom?___URS Corp._____

IMPORTANT: Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items separate as specified in Regulation 2, Rule 1, Section 202.7, please complete the following steps:

(a) Make a copy of any page containing confidential information with the confidential information blanked out. Label this page "Public Copy."
(b) Label the original page "Confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

Signature: _____ Date: _____

Mail the completed application to: **Bay Area Air Quality Management District**
939 Ellis Street
San Francisco, CA 94109
Attention: Permit Services Division

The appropriate data form(s) should be completed for all equipment requiring a Permit to Operate. The data forms are listed below. If you are uncertain which data form to use, need additional data forms, or require assistance completing a form, please call the **Permit Services Division** at (415) 749-4990 or contact our **Permit Assistance Centers** at 510-286-6991 (*Oakland*), 925-229-9972 (*Martinez*), or 408-277-1477 (*San Jose*). Forms are also available on the District's website at www.baaqmd.gov.

Form A	Abatement Device	Form C	Combustion Equipment
Form D	Dry cleaner	Form F	Semiconductor Fabrication
Form G	Other Miscellaneous	Form SC	Solvent Cleaning Operation
Form S	Surface Coating	Form SS	Form S supplement for printers
Form T	Organic Liquid Loading/Storage	Form P	Emission Point

DATA FORM G
General Air Pollution Source

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street .. . San Francisco, CA 94109.. . (415) 749-4990 FAX (415 749-5030

Form G is for general air pollution sources. Use specific forms when applicable. If this source burns fuel, then also complete Form C.

1. Business Name: Mirant Potrero, LLC Plant No: 26 (if unknown, leave blank)
2. SIC No.: _____ Date of Initial Operation _____
3. Name or Description: Cooling Tower for Unit 7 Source No.: S- 59
4. Make, Model, and Rated Capacity of Equipment: Marley, 14 cell, 140,000 gpm
5. Process Code[1] 7104 Material Code[2] _____ Usage Unit[2] _____
6. Total throughput, last 12 mos. _____ usage units[2] Maximum operating rate: _____ usage units[2] /hr
7. Typical % of total throughput: Dec-Feb 25 % Mar-May 25 % Jun-Aug 25 % Sep-Nov 25 %
8. Typical operating times: 24 hrs/day 7 days/week 45 weeks/year
9. For batch or cyclic processes: _____ minutes/cycle _____ minutes between cycles
10. Exhaust gases from source: *(at maximum operation)* Wet gas flowrate 1.7 mm cfm at Amb. °F
    Approximate water vapor content sat. volume%

EMISSION FACTORS *(at maximum operating rate)*

If this form is being submitted as part of an application for an **authority to construct**, completion of the following table is mandatory. If not, and the Source is *already in operation*, completion of the table is requested but not required.

If this source also burns fuel, do not include those combustion products in the emission factors below; they are accounted for on Form C. If source test or other data are available for composite emissions only, estimate from those data the emissions attributable to just the general process and show below.

☐ Check box if factors apply to emissions ***after*** Abatement Device(s).

	Emission Factors lb/Usage Unit [2]	***Basis Code*** [3]
11. Particulate.....	Table 4-1	
12. Organics		
13. Nitrogen Oxides (as NO_2).....		
14, Sulfur Dioxide		
15. Carbon Monoxide		
16. Other:_____		
17. Other:_____		

18. With regard to air pollutant flow from this source, what sources(s), abatement device(s) and/or emission point(s) are **immediately** downstream?

S-		**S-**		**S-**		**A**		**A-**		**A-**	
P-	59	**P-**		**P-**		**P-**		**P-**	

[1]**See Tables G-1 through G-7 for code** [2]**See Table G5 or the Material Codes Table (available upon request)**
[3]**See Basis Code Table below**

Person completing this form: Mark Strehlow Date: 07/17/03

Data Form A
ABATEMENT DEVICE

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street . . . San Francisco, CA 94109. . . (415) 749-4990 . . . FAX (415) 749-5030

for office use only

Abatement Device: Equipment/process whose primary purpose is to reduce the quantity of pollutant(s) emitted to the atmosphere.

1. Business Name: Mirant Potrero, LLC Plant No: 26 (If unknown, leave blank)

2. Name or Description Granular Activated Carbon Bed – Odor Control System Abatement Device No: A- 60

3. Make, Model, and Rated Capacity TBD

4. Abatement Device Code (See table*) 56 Date of Initial Operation

5. With regard to air pollutant flow into this abatement device, what sources(s) and/or abatement device(s) are **immediately** upstream?

S- 60 **S-** **S-** **S-** **S-**
S- **A-** **A-** **A-** **A-** **A-**

6. Typical gas stream temperature at inlet: Ambient °F

This form is being submitted as part of an application for an ***Authority to Construct***, completion of the following table is mandatory. If not, and the Abatement Device is *already in operation,* completion of the table is requested but not required.

	Pollutant	Weight Percent Reduction (at typical operation)	Basis Codes *(See Table**)*
7.	Particulate		
8.	Organics	50	3
9.	Nitrogen Oxides (as NO_2)		
10.	Sulfur Dioxide		
11.	Carbon Monoxide		
12.	Other:		
13.	Other:		

14. ☐ Check box if this Abatement Device burns fuel; complete lines 1, 2 and 15-36 on Form C (using the Abatement Device No. above for the Source No.) and attach to this form.

15. With regard to air pollutant flow from this abatement device, what sources(s), abatement device(s) and/or emission point(s) are ***immediately*** downstream?

S- **A-** **A-** **A-** **P-** 60 **P-**

Person completing this form: Mark Strehlow Date: 07/17/03/00

DATA FORM P
Emission Point

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street .. . San Francisco, CA . . . 94109. . . (415) 749-4990 . . . Fax (415) 749-5030

Form P is for well-defined emission points such as stacks or chimneys only; do not use for windows, room vents, etc.

Business Name: Mirant Potrero, LLC Plant No: 26

Odor Control System Vent Emission Point No: P-60

With regard to air pollutant flow into this emission point, what sources(s) and/or abatement device(s) are **immediately** upstream?

S-		**S-**		**S-**		**S-**		**S-**	
S-		**A-**	60	**A-**		**A-**		**A-**		**A-**	

it cross-section area: 1.95 sq. ft. Height above grade: 20 ft.

Effluent Flow from Stack

	Typical Operating Condition		*Maximum Operating Condition*	
Actual Wet Gas Flowrate	5,900	cfm	same	cfm
Percent Water Vapor	saturated	Vol %	same	Vol %
Temperature	Ambient	°F	same	°F

If this stack is equipped to measure (monitor) the emission of any air pollutants,

Is monitoring continuous? ☐ yes ☒ no

What pollutants are monitored? _____

Person completing this form Mark Strehlow Date 07/17/03

DATA FORM P
Emission Point

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street .. . San Francisco, CA . . . 94109. . . (415) 749-4990 . . . Fax (415) 749-5030

Form P is for well-defined emission points such as stacks or chimneys only; do not use for windows, room vents, etc.

Business Name: Mirant Potrero, LLC Plant No: 26

Unit 7 Cooling Tower Emission Point No: P-59

With regard to air pollutant flow into this emission point, what sources(s) and/or abatement device(s) are **immediately** upstream?

S-	59	**S-**		**S-**		**S-**		**S-**	
S-		**A-**		**A-**		**A-**		**A-**	

Exit cross-section area: 12,450 sq. ft. Height above grade: 69 ft.

Effluent Flow from Stack

	Typical Operating Condition		*Maximum Operating Condition*	
Actual Wet Gas Flowrate	1,601,000	cfm	1,757,500	cfm
Percent Water Vapor	saturated	Vol %	saturated	Vol %
Temperature	Ambient	°F	Ambient	°F

If this stack is equipped to measure (monitor) the emission of any air pollutants,

Is monitoring continuous? ☐ yes ☒ no

What pollutants are monitored? _____

Person completing this form Mark Strehlow Date 07/17/03

APPENDIX E

MODIFICATIONS TO FDOC CONDITIONS DUE TO EMISSIONS REDUCTION REQUEST

IV Permit Conditions - Revised

The following permit conditions will be imposed to ensure that the proposed project complies with all applicable District, State, and Federal Regulations. The conditions limit operational parameters such as fuel use, stack gas emission concentrations, and mass emission rates. Permit conditions will also specify abatement device operation and performance levels. To aid enforcement efforts, conditions specifying emission monitoring, source testing, and record keeping requirements are included. Furthermore, pollutant mass emission limits (in units of lb/hr and lb/MM Btu of natural gas fired) will ensure that daily and annual emission rate limitations are not exceeded.

To provide maximum operational flexibility, no limitations will be imposed on the type, or quantity of gas turbine start-ups or shutdowns. Instead, the facility must comply with daily and annual (consecutive twelve-month) mass emission limits at all times. Compliance with CO and NO_x limitations will be verified by continuous emission monitors (CEMs) that will be in operation during all turbine operating modes, including start-up and shutdown. If the CO and NO_2 CEMs are not capable of accurately assessing gas turbine start-up and shutdown mass emission rates due to variable gas content and the differing response times of the gas monitors, then start-up and shutdown mass emission rates will be based upon the following emission rates for each turbine/hrsg unit:

Cold Start-up
NO_x: 170 lb/hr
CO: 548 lb/hr
POC: 26.25 lb/hr
PM_{10}: 11 lb/hr
SO_2: 1.62 lb/hr

Hot Start-up
NO_x: 164 lb/hr
CO: 268 lb/hr
POC: 17.9 lb/hr
PM_{10}: 11 lb/hr
SO_2: 1.62 lb/hr

Shutdown
NO_x: 153.9 lb/hr
CO: 190.4 lb/hr
POC: 15.7 lb/hr
PM_{10}: 11 lb/hr
SO_2: 1.62 lb/hr

Compliance with POC, SO_2, and PM_{10} mass emission limits will be verified by annual source testing.

In addition to permit conditions that apply to as designed operation of each CTG/HRSG power train and the auxiliary boilers, conditions will be imposed that govern equipment operation during the initial commissioning period when the CTG/HRSG power trains will operate without their SCR systems and oxidation catalysts fully operational. During this commissioning period, the gas turbines will be tested, control systems will be adjusted, and the HRSGs and auxiliary boiler steam tubes will be cleaned. Permit conditions 1 through 12 apply to this commissioning period and are intended to minimize emissions during the commissioning period and insure that those emissions will not contribute to the exceedence of any short-term applicable ambient air quality standard.

Potrero Unit 7
Permit Conditions

Definitions:

Clock Hour:	Any continuous 60-minute period beginning on the hour.
Calendar Day:	Any continuous 24-hour period beginning at 12:00 AM or 0000 hours.
Year:	Any consecutive twelve-month period of time
Heat Input:	All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in Btu/scf.
Rolling 3-hour period:	Any three-hour period that begins on the hour and does not include start-up or shutdown periods.
Firing Hours:	Period of time during which fuel is flowing to a unit, measured in fifteen-minute increments.
MM Btu:	million British thermal units
Gas Turbine Start-up Mode:	The lesser of the first 256 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated or the period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves two consecutive CEM data points in compliance with the emission concentration limits of conditions 27(b) and 27(d).
Gas Turbine Shutdown Mode:	The lesser of the 30 minute period immediately prior to the termination of fuel flow to the Gas Turbine or the period of time from non-compliance with any requirement listed in Conditions 27(b) through 27(d) until termination of fuel flow to the Gas Turbine.
Specified PAHs:	The polycyclic aromatic hydrocarbons listed below shall be considered to Specified PAHs for these permit conditions. Any emission limits for Specified PAHs refer to the sum of the emissions for all six of the following compounds. Benzo[a]anthracene Benzo[b]fluoranthene Benzo[k]fluoranthene Benzo[a]pyrene Dibenzo[a,h]anthracene

	Indeno[1,2,3-cd]pyrene
Corrected Concentration:	The concentration of any pollutant (generally NO_x, CO, or NH_3) corrected to a standard stack gas oxygen concentration. For emission point P-55 (combined exhaust of S-55 Gas Turbine and S-56 HRSG duct burners) and emission point P-57 (combined exhaust of S-57 Gas Turbine and S-58 HRSG duct burners) the standard stack gas oxygen concentration is 15% O_2 by volume on a dry basis.
Commissioning Activities:	All testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the Potrero PP Unit#7 construction contractor to insure safe and reliable steady state operation of the gas turbines, heat recovery steam generators, steam turbine, and associated electrical delivery systems.
Commissioning Period:	The Period shall commence when all mechanical, electrical, and control systems are installed and individual system start-up has been completed, or when a gas turbine is first fired, whichever occurs first. The period shall terminate when the plant has completed performance testing, is available for commercial operation, and has initiated sales to the power exchange.
Precursor Organic Compounds (POCs):	Any compound of carbon, excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate
CEC CPM:	California Energy Commission Compliance Program Manager
Potrero PP Unit#7:	Potrero Power Plant Unit 7

Conditions for the Commissioning Period

1. The owner/operator of the Potrero PP Unit 7 shall minimize emissions of carbon monoxide and nitrogen oxides from S-55 and S-57 Gas Turbines and S-56 and S-58 Heat Recovery Steam Generators (HRSGs) to the maximum extent possible during the commissioning period. Conditions 1 through 12 shall only apply during the commissioning period as defined above. Unless otherwise indicated, Conditions 13 through 47 shall apply after the commissioning period has ended.

2. At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the S-55 & S-57 Gas Turbine combustors and S-56 & S-58 Heat Recovery Steam Generator duct burners shall be tuned to minimize the emissions of carbon monoxide and nitrogen oxides.

3. At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturers and the construction contractor, the A-55 and A-57 SCR Systems and A-56 and A-58 CO Oxidation Catalyst Systems shall be installed, adjusted, and operated to minimize

the emissions of carbon monoxide and nitrogen oxides from S-55 & S-57 Gas Turbines and S-56 & S-58 Heat Recovery Steam Generators.

4. Coincident with the as designed operation of A-55 & A-57 SCR Systems, pursuant to conditions 3, 10, 11, and 12, the Gas Turbines (S-55 & S-57) and the HRSGs (S-56 & S-58) shall comply with the NO_x and CO emission limitations specified in conditions 20(a) through 20(d).

5. The owner/operator of the Potrero PP Unit#7 shall submit a plan to the District Permit Services Division and the CEC CPM at least four weeks prior to first firing of S-55 or S-57 Gas Turbines describing the procedures to be followed during the commissioning of the gas turbines and HRSGs. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the Dry-Low-NO_x combustors, the installation and operation of the SCR systems and oxidation catalysts, the installation, calibration, and testing of the CO and NO_x continuous emission monitors, and any activities requiring the firing of the Gas Turbines (S-55 & S-57) and HRSGs (S-56 & S-58) without abatement by their respective SCR and CO Catalyst Systems.

6. During the commissioning period, the owner/operator of the Potrero PP Unit#7 shall demonstrate compliance with conditions 8 through 11 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

   firing hours for each gas turbine and each HRSG
   fuel flow rates to each train
   stack gas nitrogen oxide emission concentrations at P-55 and P-57
   stack gas carbon monoxide emission concentrations P-55 and P-57
   stack gas carbon dioxide concentrations P-55 and P-57

   The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the Gas Turbines (S-55 & S-57) and HRSGs (S-56 & S-58). The owner/operator shall use District-approved methods to calculate heat input rates, NO_x mass emission rates, carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each clock hour and each calendar day. All records shall be retained on site for at least 5 years from the date of entry and made available to District personnel upon request.

7. The District-approved continuous emission monitors specified in condition 5 shall be installed, calibrated, and operational prior to first firing of the Gas Turbines (S-55 & S-57) and Heat Recovery Steam Generators (S-56 & S-58). After first firing of the turbines and auxiliary boilers, the detection range of these continuous emission monitors shall be adjusted as necessary to accurately measure the resulting range of CO and NO_x emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval.

8. The total number of firing hours of S-55 Gas Turbine and S-56 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-55 SCR System and/or A-56 Oxidation Catalyst System shall not exceed 500 hours during the commissioning period. Such operation of S-55 Gas Turbine and S-56 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or Oxidation Catalyst Systems fully operational. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 500 firing hours without abatement shall expire.

9. The total number of firing hours of S-57 Gas Turbine and S-58 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-57 SCR System and/or A-58 Oxidation Catalyst System shall not exceed 500 hours during the commissioning period. Such operation of S-57 Gas Turbine and S-58 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or Oxidation Catalyst Systems fully operational. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 500 firing hours without abatement shall expire.

10. The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM_{10}, and sulfur dioxide that are emitted by the Gas Turbines (S-55 & S-57) and Heat Recovery Steam Generators (S-56 & S-58) during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in condition 24.

11. Combined pollutant mass emissions from the Gas Turbines (S-55 & S-57) and Heat Recovery Steam Generators (S-56 & S-58) shall not exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the Gas Turbines (S-55 & S-57).

NO_x (as NO_2)	8,428 pounds per calendar day	400 pounds per hour
CO	12,982 pounds per calendar day	584 pounds per hour
POC (as CH_4)	668 pounds per calendar day	
PM_{10}	624pounds per calendar day	
SO_2	148.2 pounds per calendar day	

12. Prior to the end of the Commissioning Period, the Owner/Operator shall conduct a District and CEC approved source test using external continuous emission monitors to determine compliance with condition 20. The source test shall determine NO_x, CO, and POC emissions during start-up and shutdown of the gas turbines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods. No later than twenty working days before the execution of the source tests, the Owner/Operator shall submit to the District and the CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this condition. The District and the CEC CPM will notify the Owner/Operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The Owner/Operator shall incorporate the District and CEC CPM comments into the test plan. The

Owner/Operator shall notify the District and the CEC CPM within seven (7) working days prior to the planned source testing date. Source test results shall be submitted to the District and the CEC CPM within 30 days of the source testing date.

Conditions for the Gas Turbines (S-55 & S-57) and the Heat Recovery Steam Generators (HRSGs; S-56 & S-58)

13. The Gas Turbines (S-55 and S-57) and HRSG Duct Burners (S-56 and S-58) shall be fired exclusively on natural gas. (BACT for SO_2 and PM_{10})

14. The combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-55 & S-56 and S-57 & S-58) shall not exceed 2,249.1 MM Btu per hour, averaged over any rolling 3-hour period. (PSD for NO_x)

15. The combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-55 & S-56 and S-57 & S-58) shall not exceed 53,978.4 MM Btu per calendar day. (PSD for PM_{10})

16. The combined cumulative heat input rate for the Gas Turbines (S-55 & S-57) and the HRSGs (S-56 & S-58) shall not exceed 29,300,000~~37,960,000~~ MM Btu per year. (Offsets)

17. The HRSG duct burners (S-56 and S-58) shall not be fired unless its associated Gas Turbine (S-55 and S-57, respectively) is in operation. (BACT for NO_x)

18. Except as provided in Condition No. 8, S-55 Gas Turbine and S-56 HRSG shall be abated by the properly operated and properly maintained A-55 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-55 catalyst bed has reached minimum operating temperature. (BACT for NO_x)

19. Except as provided in Condition No. 9, S-57 Gas Turbine and S-58 HRSG shall be abated by the properly operated and properly maintained A-57 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-57 catalyst bed has reached minimum operating temperature. (BACT for NO_x)

20. The Gas Turbines (S-55 & S-57) and HRSGs (S-56 & S-58) shall comply with requirements (a) through (h) under all operating scenarios, including duct burner firing mode and steam injection power augmentation mode. Requirements (a) through (h) do not apply during a gas turbine start-up or shutdown. (BACT, PSD, and Toxic Risk Management Policy)

    (a) Nitrogen oxide mass emissions (calculated in accordance with District approved methods as NO_2) at P-55 (the combined exhaust point for the S-55 Gas Turbine and the S-56 HRSG after abatement by A-55 SCR System) shall not exceed 20.2 pounds per hour or 0.0090 lb./MM Btu (HHV) of natural gas fired. Nitrogen oxide mass emissions (calculated in accordance with District approved methods as NO_2) at P-57 (the combined exhaust point for the S-57 Gas Turbine and the S-58 HRSG after abatement by A-57

SCR System) shall not exceed 20 pounds per hour or 0.0090 lb./MM Btu (HHV) of natural gas fired. (PSD for NO_x)

(b) The nitrogen oxide emission concentration at emission points P-55 and P-57 each shall not exceed 2.5 ppmv, on a dry basis, corrected to 15% O_2, averaged over any 1-hour period. (BACT for NO_x)

(c) Carbon monoxide mass emissions at P-55 and P-57 each shall not exceed 0.013 lb./MM Btu (HHV) of natural gas fired or 29.22 pounds per hour, averaged over any rolling 3-hour period. (PSD for CO)

(d) The carbon monoxide emission concentration at P-55 and P-57 each shall not exceed 6 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. (BACT for CO)

(e) Ammonia (NH_3) emission concentrations at P-55 and P-57 each shall not exceed 5 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. This ammonia emission concentration shall be verified by the continuous recording of the ammonia injection rate to A-55 and A-57 SCR Systems. The correlation between the gas turbine and HRSG heat input rates, A-55 and A-57 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-55 and P-57 shall be determined in accordance with permit condition #29. (TRMP for NH_3)

(f) Precursor organic compound (POC) mass emissions (as CH_4) at P-55 and P-57 each shall not exceed 5.6 pounds per hour or 0.0025 lb./MM Btu of natural gas fired. (BACT)

(g) Sulfur dioxide (SO_2) mass emissions at P-55 and P-57 each shall not exceed 3.12 pounds per hour or 0.0014 lb./MM Btu of natural gas fired. (BACT)

(h) Particulate matter (PM_{10}) mass emissions at P-55 and P-57 each shall not exceed 11 pounds per hour or 0.00592 lb./MM Btu of natural gas fired when the HRSG duct burners are not in operation. Particulate matter (PM_{10}) mass emissions at P-55 and P-57 each shall not exceed 13 pounds per hour or 0.00574 lb./MM Btu of natural gas fired when the HRSG duct burners are in operation. (BACT)

21. The regulated air pollutant mass emission rates from each of the Gas Turbines (S-55 and S-57) during a start-up or a shutdown shall not exceed the limits established below. (PSD)

	Cold Start-Up (lb./start-up)	Hot Start-Up (lb./start-up)	Shutdown (lb./shutdown)
Oxides of Nitrogen (as NO_2)	452	189	59
Carbon Monoxide (CO)	990	291	73
Precursor Organic Compounds (as CH_4)	112	27	6

In the event that CEMs are not available or reliable, the following emission factors shall be used to estimate startup and shutdown emissions. These emission rates per unit (turbine/ HRSG) are as follows:

	Cold Startup	Hot Startup	Shutdown
NOx (as NO2) lb/hr	170	164	59
CO lb/hr	548	268	73
POC lb/hr	26.3	17.9	6
PM-10 lb/hr	11	11	11
SO2 lb/hr	1.62	1.62	1.62

22. The Gas Turbines (S-55 and S-57) shall not be in start-up mode simultaneously. (PSD)

23. Total combined emissions from the Gas Turbines and HRSGs (S-55, S-56, S-57, and S-58), including emissions generated during Gas Turbine start-ups and shutdowns shall not exceed the following limits during any calendar day:

(a) 2,002 pounds of NO_x (as NO_2) per day (CEQA)
(b) 3,604 pounds of CO per day (PSD)
(c) 478 pounds of POC (as CH_4) per day (CEQA)
(d) 624 pounds of PM_{10} per day (PSD)
(e) 148.2 pounds of SO_2 per day (BACT)

24. Cumulative combined emissions from the Gas Turbines and HRSGs (S-55, S-56, S-57, and S-58), including emissions generated during gas turbine start-ups and shutdowns shall not exceed the following limits during any consecutive twelve-month period:

(a) 137.9~~178.4~~ tons of NO_x (as NO_2) per year (Offsets, PSD)
(b) 205.9~~265.1~~ tons of CO per year (Cumulative Increase)
(c) 37.8~~49.1~~ tons of POC (as CH_4) per year (Offsets)
(d) 86.3~~110.5~~ tons of PM_{10} per year (Offsets, PSD)
(e) 19.8~~26.0~~ tons of SO_2 per year (Cumulative Increase)

25. a. The maximum projected annual toxic air contaminant emissions (per condition 28) from the Gas Turbines and HRSGs combined (S-55, S-56, S-57, and S-58) shall not exceed the following limits:

4,208 pounds of formaldehyde per year
520 pounds of benzene per year
41 pounds of Specified polycyclic aromatic hydrocarbons (PAHs) per year

unless the following requirement is satisfied:

The owner/operator shall perform a health risk assessment using the emission rates determined by source test and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. This risk analysis shall be submitted to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and the CEC CPM revise the

carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will result in a cancer risk of not more than 1.0 in one million, the District and the CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (TRMP)

b. The maximum projected annual Hazardous Air Pollutant (HAP) emissions from the Gas Turbines and HRSGs combined (S-55, S-56, S-57, and S-58) shall not exceed the following limit:

20,000 pounds of hexane per year
(US-CAA, Section 112(g))

Conformance with this limit shall be verified by the source testing in condition 32.

26. The owner/operator shall demonstrate compliance with conditions 14 through 17, 20(a) through 20(d), 21, 23(a), 23(b), 24(a), and 24(b) by using properly operated and maintained continuous monitors (during all hours of operation including equipment Start-up and Shutdown periods) for all of the following parameters:

(a) Firing Hours and Fuel Flow Rates for each of the following sources: S-55 & S-56 combined and S-57 & S-58 combined.
(b) Carbon Dioxide (CO_2) or Oxygen (O_2) concentrations, Nitrogen Oxides (NO_x) concentrations, and Carbon Monoxide (CO) concentrations at each of the following exhaust points: P-55 and P-57.
(c) Ammonia injection rate at A-55 and A-57 SCR Systems
(d) Steam injection rate at S-55 & S-57 Gas Turbine Combustors

The owner/operator shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, the owner/operator shall calculate and record the total firing hours, the average hourly fuel flow rates, and average hourly pollutant emission concentrations.

The owner/operator shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

(e) Heat Input Rate for each of the following sources: S-55 & S-56 combined and S-57 & S-58 combined.
(f) Corrected NO_x concentrations, NO_x mass emissions (as NO_2), corrected CO concentrations, and CO mass emissions at each of the following exhaust points: P-55 and P-57.

Applicable to emission points P-55 and P-57, the owner/operator shall record the parameters specified in conditions 26(e) and 26f) at least once every 15 minutes (excluding normal calibration periods). As specified below, the owner/operator shall calculate and record the following data:

(g) total Heat Input Rate for every clock hour and the average hourly Heat Input Rate for every rolling 3-hour period.

(h) on an hourly basis, the cumulative total Heat Input Rate for each calendar day for the following: each Gas Turbine and associated HRSG combined and all four sources (S-55, S-56, S-57, and S-58) combined.

(i) the average NO_x mass emissions (as NO_2), CO mass emissions, and corrected NO_x and CO emission concentrations for every clock hour and for every rolling 3-hour period.

(j) on an hourly basis, the cumulative total NO_x mass emissions (as NO_2) and the cumulative total CO mass emissions, for each calendar day for the following: each Gas Turbine and associated HRSG combined, and all four sources (S-55, S-56, S-57, and S-58) combined.

(k) For each calendar day, the average hourly Heat Input Rates, Corrected NO_x emission concentrations, NO_x mass emissions (as NO_2), corrected CO emission concentrations, and CO mass emissions for each Gas Turbine and associated HRSG combined.

(l) on a daily basis, the cumulative total NO_x mass emissions (as NO_2) and cumulative total CO mass emissions, for the previous consecutive twelve month period for all four sources (S-55, S-56, S-57, and S-58) combined.

(1-520.1, 9-9-501, BACT, Offsets, NSPS, PSD, Cumulative Increase)

27. To demonstrate compliance with conditions 20(f), 20(g), 20(h), 23(c) through 23(e), and 24(c) through 24(e), the owner/operator shall calculate and record on a daily basis, the Precursor Organic Compound (POC) mass emissions, Fine Particulate Matter (PM_{10}) mass emissions (including condensable particulate matter), and Sulfur Dioxide (SO_2) mass emissions from each power train. The owner/operator shall use the actual Heat Input Rates calculated pursuant to condition 26, actual Gas Turbine Start-up Times, actual Gas Turbine Shutdown Times, and CEC and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

(a) For each calendar day, POC, PM_{10}, and SO_2 emissions shall be summarized for: each power train (Gas Turbine and its respective HRSG combined) and all four sources (S-55, S-56, S-57, and S-58) combined.

(b) on a daily basis, the 365 day rolling average cumulative total POC, PM_{10}, and SO_2 mass emissions, for all four sources (S-55, S-56, S-57, and S-58) combined.

(Offsets, PSD, Cumulative Increase)

28. To demonstrate compliance with Condition 25, the owner/operator shall calculate and record on an annual basis the maximum projected annual emissions of: Formaldehyde, Benzene, Specified PAHs and hexane. Maximum projected annual emissions shall be calculated using the maximum Heat Input Rate of 29,300,000 ~~37,960,000~~ MM Btu/year and the highest emission factor (pounds of pollutant per MM Btu of Heat Input) determined by any source test of the S-55 & S-57 Gas Turbines and/or S-56 & S-58 Heat Recovery Steam Generators. If this calculation method results in an unrealistic mass emission rate (the highest emission factor occurs at a low firing rate) the applicant may use an alternate calculation, subject to District approval. (TRMP)

29. Within 60 days of start-up of the Potrero PP Unit #7, the owner/operator shall conduct a District-approved source test on exhaust point P-55 or P-57 to determine the corrected ammonia (NH_3) emission concentration to determine compliance with condition 20(e). The source test shall determine the correlation between the heat input rates of the gas turbine and associated HRSG, A-55 or A-57 SCR System ammonia injection rate, and the corresponding NH_3 emission concentration at emission point P-55 or P-57. The source test shall be conducted over the expected operating range of the turbine and HRSG (including, but not limited to minimum, 70%, 85%, and 100% load) to establish the range of ammonia injection rates necessary to achieve NO_x emission reductions while maintaining ammonia slip levels. Continuing compliance with condition 20(e) shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. (TRMP)

30. Within 60 days of start-up of the Potrero PP Unit #7 and on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on exhaust points P-55 and P-57 while each Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum load (including steam injection power augmentation mode) to determine compliance with Conditions 20(a), (b), (c), (d), (f), (g), and (h), while each Gas Turbine and associated Heat Recovery Steam Generator are operating at minimum load to determine compliance with Conditions 20(c) and (d), and to verify the accuracy of the continuous emission monitors required in condition 26. The owner/operator shall test for (as a minimum): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and mass emissions, nitrogen oxide concentration and mass emissions (as NO_2), carbon monoxide concentration and mass emissions, sulfur dioxide concentration and mass emissions, methane, ethane, and particulate matter (PM_{10}) emissions including condensable particulate matter. (BACT, offsets)

31. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section and the CEC CPM prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements for continuous emission monitors as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section and the CEC CPM in writing of the source test protocols and projected test dates at least 7 days prior to the testing date(s). As indicated above, the Owner/Operator shall measure the contribution of condensable PM (back half) to the total PM_{10} emissions. However, the Owner/Operator may propose alternative measuring techniques to measure condensable PM such as the use of a dilution tunnel or other appropriate method used to capture semi-volatile organic compounds. Source test results shall be submitted to the District and the CEC CPM within 60 days of conducting the tests. (BACT)

32. Within 60 days of start-up of the Potrero PP Unit #7 and on an biennial basis (once every two years) thereafter, the owner/operator shall conduct a District-approved source test on exhaust point P-55 or P-57 while the Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum allowable operating rates to demonstrate compliance with Condition 25. If three consecutive biennial source tests demonstrate that the annual

emission rates calculated pursuant to condition 28 for any of the compounds listed below are less than the BAAQMD Toxic Risk Management Policy trigger levels shown, then the owner/operator may discontinue future testing for that pollutant:

Benzene	≤	26.8 pounds/year
Formaldehyde	≤	132 pounds/year
Specified PAHs	≤	0.18 pounds/year
Hexane (TRMP)	≤	20,000 pounds/year

33. The owner/operator of the Potrero PP Unit #7 shall submit all reports (including, but not limited to monthly CEM reports, monitor breakdown reports, emission excess reports, equipment breakdown reports, etc.) as required by District Rules or Regulations and in accordance with all procedures and time limits specified in the Rule, Regulation, Manual of Procedures, or Enforcement Division Policies & Procedures Manual. (Regulation 2-6-502)

34. The owner/operator of the Potrero PP Unit #7 shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to: continuous monitoring records (firing hours, fuel flows, emission rates, monitor excesses, breakdowns, etc.), source test and analytical records, natural gas sulfur content analysis results, emission calculation records, records of plant upsets and related incidents. The owner/operator shall make all records and reports available to District and the CEC CPM staff upon request. (Regulation 2-6-501)

35. The owner/operator of the Potrero PP Unit #7 shall notify the District and the CEC CPM of any violations of these permit conditions. Notification shall be submitted in a timely manner, in accordance with all applicable District Rules, Regulations, and the Manual of Procedures. Notwithstanding the notification and reporting requirements given in any District Rule, Regulation, or the Manual of Procedures, the owner/operator shall submit written notification (facsimile is acceptable) to the Enforcement Division within 96 hours of the violation of any permit condition. (Regulation 2-1-403)

36. The stack height of emission points P-55 and P-57 shall each be at least 180 feet above grade level at the stack base. (PSD, TRMP)

37. The Owner/Operator of Potrero PP Unit #7 shall provide adequate stack sampling ports and platforms to enable the performance of source testing. The location and configuration of the stack sampling ports shall be subject to BAAQMD review and approval. (Regulation 1-501)

38. Within 180 days of the issuance of the Authority to Construct for the Potrero PP Unit #7, the Owner/Operator shall contact the BAAQMD Technical Services Division regarding requirements for the continuous monitors, sampling ports, platforms, and source tests required by conditions 26, 29, 30 and 32. All source testing and monitoring shall be conducted in accordance with the BAAQMD Manual of Procedures. (Regulation 1-501)

39. Prior to the issuance of the BAAQMD Authority to Construct for the Potrero PP Unit #7, the Owner/Operator shall demonstrate that valid emission reduction credits in the amount of 158.591~~205.2~~ tons/year of Nitrogen Oxides, 43.739 ~~56.5~~ tons/year of Precursor Organic Compounds or equivalent (as defined by District Regulations 2-2-302.1 and 2-2-302.2), 95.465 ~~and 110.5~~ tons of Particulate Matter less than 10 microns, and 19.771 tons of Sulfur Dioxide are under their control through enforceable contracts, option to purchase agreements, or equivalent binding legal documents. (Offsets)

40. Prior to the start of construction of the Potrero PP Unit #7, the Owner/Operator shall provide to the District valid emission reduction credit banking certificates in the amount of 158.591 ~~205.2~~ tons/year of Nitrogen Oxides, 43.739 ~~56.5~~ tons/year of Precursor Organic Compounds or equivalent as defined by District Regulations 2-2-302.1 and 2-2-302.2, 95.465 ~~and 110.5~~ tons of Particulate Matter less than 10 microns, and 19.771 tons of Sulfur Dioxide. (Offsets)

41. Pursuant to BAAQMD Regulation 2, Rule 6, section 404.1, the owner/operator of the Potrero PP Unit #7 shall submit an application to the BAAQMD for a major facility review permit within 12 months of the issuance of the PSD Permit. (Regulation 2-6-404.1)

42. Pursuant to 40 CFR Part 72.30(b)(2)(ii) of the Federal Acid Rain Program, the owner/operator of the Potrero PP Unit #7 shall not operate either of the gas turbines until either: 1) a Title IV Operating Permit has been issued; 2) 24 months after a Title IV Operating Permit Application has been submitted, whichever is earlier. (Regulation 2, Rule 7)

43. The Potrero PP Unit #7 shall comply with the continuous emission monitoring requirements of 40 CFR Part 75. (Regulation 2, Rule 7)

44. The owner/operator shall take monthly samples of the natural gas combusted at the Potrero PP Unit #7. The samples shall be analyzed for sulfur content using District-approved laboratory methods or the owner/operator shall obtain certified analytical results from the gas supplier. The sulfur content test results shall be retained on site for a minimum of five years from the test date and shall be utilized to satisfy the requirements of 40 CFR Part 60, subpart GG. If the results from six consecutive monthly samples show results below 0.5 grains per 100 scf, the owner/operator may discontinue the sampling program with District approval. (cumulative increase)